Grand·Prix

INTERNATIONAL

BRAZIL

THE JEWEL IN NELSON'S CROWN

KEKE ROSBERG:
THE INSIDE LINE

HART'S TURBO:
DAVID FACES GOLIATH

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IN THIS ISSUE

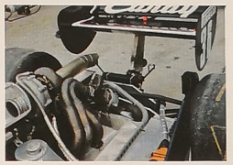
PAGE 8 :
PADDOCK NOTES FROM JACAREPAGUA

PAGE 10 :
BALESTRE SAYS
HE'LL QUITUN-LESS..

The controversial president proposes radical changes in F1, and puts his job on the line, saying he'll quit FISA and the FIA unless his ideas are accepted next month. And we have an exclusive story on his much-discussed past. Keith Botsford has examined the documents, and talked to the man about power and politics in motor sport.

PAGE 11 :
TRUE SPORTSMEN
Nelson Piquet and Kete Rosberg clearly enjoyed their great battle in Brazil. From our post-race talks with temw a refreshing story develops of two drivers who are happy to express their respect for each other's sportsmanship.

PAGE 14 :
EXTRA, EXTRA
Gilles Villeneuve has only one motto :
press on, be it on the street or on the track. He told us he preferred to crash rather than lose the lead.
Ad the other end of the field, the Ligier team is in big trouble as business quarrels hold up its expectedturbo.
And we report on the dangerous strain imposed on the drivers by the current car
Piquet blacking out for the second time after winning, and Patrese stopping at half distance from exhaustion.



PAGE 16 :
PRATICE
The why and wherefores that tell how the starting grid is the shape it is.

PAGE 18 :
SIMPLY, A GREAT RACE
Brazil was one of those races to remember. We saw Piquet's storming climb through the field, the nose-to-tail and often side-by-side battles, and the equally tough fight out of the limelight, but into the points, down the field.

N° 45 (LONG BEACH) WILL BE ON SALE ON APRIL 8, 1982

PAGE 22 :
LAP CHART

PAGE 24 :
JACAREPAGUA IN FIGURES

PAGE 26 :
THE ENGLISH TURBO
David against three goliaths, Britain's Brian Hart is pitting enthusiasm against money to try to beat the big boys at the turbo game. Maurice Hamilton visited the workshops of the driver turned engineer to report his problems and his hopes.

PAGES 30
TECHNICAL :
LOTUS 91
After the heartbreak banning of the brilliant Lotus 88, Colin Chapman stays track legal with his new 91. But Giorgio Piola explains he still has some tricks up his wheelbase.

PAGE 32 :
KEKE : THE ROAD TO THE TOP
It's been a long and sometimes hungry road for Keke Rosberg from junior karts to battling for the lead in a Grand Prix.
His talent is at last being revealed with Williams. GPI's Chief Editor Jeff Hutchinson got a special insinght into Rosberg when he went throught the exacting task of teaching the Finn to fly, and draws a thoughtful portrait of his public and private persona.

PAGE 37 :
THE GRAND PRIX IN PICTURES
GPI is where the action is -- in both sense of the phrase -- so of course our photographers were there when Villeneuve made his big mistake, when Niki has his problems and when the exhaustion took its toll on Piquet. And we bring it to you as always in full colour.

PAGE 48 :
POSTCARD FROM JACAREPAGUA
Brazil is sun, sea and samba, and the girls of Ipanema. You can be sure GPI was there to record the fun.
PAGE 50 :

NELSON'S COLUMN
It didn't take long for our new columnist to get to the top of the column. Nelson's own storyof his winning drive includes the assurance that just because he's collapsed after tworaces, he's no weakling.
The proof is in the world of football.

PAGE 51 :
COCKPITS
What's new in all the teams since Kyalami.

Grand·Prix international

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The paddock in Rio de Janeiro

NO MORE MATRA ?

It has been common knowledge for several months now that a conflict between the Talbot-Peugeot group and Matra has seriously delayed the racing debut of the turbocharged engine which the Talbot-sponsored Ligier-Gitanes team had hoped to be racing this year.

The Matra turbo, a notably compact 1500cc V6, has been ready for delivery to Ligier since last November. But Matra boss Lagardère, locked in a commercial dispute with Talbot over the marketing of the Murena and Rancho road cars built by Matra for sale through Talbot dealers, is using the racing engine as a lever in the affair.

At a reception given by Guy Ligier in Rio, a top public relations executive of Talbot announced that Ligier had now been given permission to look for an alternative power plant. Ligier had already informed his mechanics that there was the possibility of an engine department being opened at his Vichy HQ, although it is being suggested that it is far more likely that Ligier will switch back to Cosworth-Ford engines than undertake the gamble of building and designing his own racing unit.

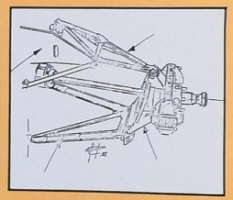
Once one of FOCA's strongest supporters, Guy Ligier switched allegiance to FISA last year at the request of Talbot. But recent events, and his own belief that turbocharging will be the financial ruin of Formula 1, have persuaded this important French entrant to return to the FOCA camp.

Sounding somewhat tired and emotional at the reception in Rio, he addressed a large group of journalists with some fighting words. *"All of you who are here"*, he said, *"are involved just as we are in Formula 1. Things aren't going too well for it at present: you must help us to preserve it."*

TOLEMAN'S GOOD NEWS... AND BAD

The last two minutes of qualifying at Rio proved heart-breaking for the Candy-Toleman team. After two days of struggling to get their Hart-engined turbocars to handle over the bumps, it looked as though their new driver, Italian Can-Am expert Teo Fabi, had scrambled on to last place on the grid.

But just as the chequered flag was being readied to end the session, Eddie Cheever managed to fling his misfiring Ligier-Matra across the line with a time 0.04 second faster than Teo's. The Toleman turbo was out, and with it, according to Italian colleagues, goes the team's sponsorship from washing machine maker Candy of Milan.



"We probably cameinto Formula 1 last year at the most difficult possible time", said a Toleman team spokesman. *"It has cost us a lot of time and effort, but we're not going to give up. Over the winter, for example, only one of our mechanics left us: we feel we can eventually achieve the aims we set for ourselves in Formula 1".*

The Oxfordshire team's number one VIP guest in Brazil was Ted Toleman, Chairman of the Toleman group of companies which owns the racing division. A one-time car racer who has competed at Le Mans, Ted is now heavily involved in off-shore power boat racing. He was due to return to Britain after the Brazlian GP for an announcement that his boating is to be sponsored this yerar by Peter Stuyvesant cigarettes in a bid to repeat the British championship which be won last year.

We wish the F1 team as much luck in securing the financial support it needs for the reminder of the year.

NO BMW FOR BERNIE ?

Conspicuous by their absence in Brazil were BMW Rennleiter Dieter Stappert and his engineering staff from Munich. Both Brabham and BMW sources have confidently answered enquiries about the future of the Brabham-BMW turbocar, the BT50, by insisting that it will make its re-appearance at Imola. But we have been told more recently that chances of an early return to BMW turbopower are "very remote".

More significant still is the amount of work which went into the promising new "D" versions of the BT49 which were raced by Piquet and Patrese in Rio. The latest reports from Cheesington are that a BT51 chassis is on the way... and that it is designed around a Cosworth V8 engine.

Meanwhile, in Germany, it is being suggested that another team is making overtures to BMW for the engine, which has so far raced only once, at Kyalami. The likeliest candidate appears to be ATS, which is of course German-owned and has a German driver, Manfred Winkelhock, with strong BMW connections.

In theory, the Brabham team has exclusive rights to the BMW engine for 15 races. However, we hear that Ecclestone, in an unguarded moment, said that he had lost interest in the BMW. It was a suitable remark for the FOCA boss, most of whose members are campaigning for a ban on turbocharging as soon as possible in Formula 1.

EMILIO'S BACK

Emilio de Villota, the 33-year-old Spanish banker who won the British national Aurora Formula 1 title in 1980, is expected to be trying to qualify for the San Marino GP next month. He will be driving a March 812 for a new team sponsored by LBT, an American synthetic oil.

Villota has a short GP career punctuated by well publicised incidents at Zarama involving James Hunt (1976) and Laffite/Reutemann (1980). At the time when t he negotiated his arrangement with Macdonald it seemed unlikely that Jochen Mass would be able to find the sponsorship which he required to stay with March. With the announcement by Rothmans, however, it has been necessary to create a "B" team at March, with one car run for Villota on a "separate but equal" basis by established F2 entrant Mick Earle.

Villota was present at Rio, but he told GPI that he had not yet had the pleasure of meeting Earle.

ROTHMANS RETURNS

March drivers Jochen Mass and Raul Boesel, together with team boss John Macdonald, made a flying break from testing the latest version of the March 812 so that they could be in London on the Monday before the Brazilian GP. It was at the airport hotel that the giant Rothmans tobacco company was announcing an important (two million dollar) agreement to sponsor March in Grand Prix racing for the next two years.

Better known now for its involvement in rallying through the Opel team winners of the 1982 Monte Carlo Rally, Rothmans is no stranger to racing sponsorship. The company supported Formula 5000 for many years, and was briefly associated in 1976 with the F1 career of Ian Scheckter, elder brother of world champion Jody.

AT LAST: THE FW08

Spotted at Brands Hatch one week before the Brazilian GP was the long-awaited Williams FW08, which was being tested by Keke Rosberg in readiness for its first race at Imola late in April.

This latest model from the drawing board of Patrick Head lacks the elegance of its predecessor, which twice won the Constructor's championship. One of the team's engineers confirmed that the latest Williams is shorter and stubbier than the FW07. *"It was originally conceived for possible conversion to six-wheel specification"*, he said. *"Then when we tested it in four-wheel layout in the wind tunnel the results were so promising that we decided to build it like this"*.

The FW08, like the FW07, is built of aluminium honeycomb with no composite materials in the chassis structure itself. It is nevertherless expected to be lighter than the FW07, and there is a good possibility that it will be converted to six wheels later in the year, possibly even for racing. New "apprentice" Williams driver Jonathan Palmer will be helping with tests.

A delighted Keke Rosberg completed the second day of trials with the new car by smashing all unofficial records for the Brands Hatch short circuit, which now stands at 36.3 seconds. This is almost a second faster than Alan Jones 1979 record set with the FW07 in "sliding skirt" days.

DIDIER'S ADVOCATE

Motorsport's recent troubles have created a great deal of fresh work, notably for the legal profession. It was no surprise, therefore, to find that Jan Paulsson, the lawyer who has advised Didier Pironi in the creation of the body which has taken over the functions of the GPDA, had arrived in Rio by Concorde for the Brazilian GP.

Mr Paulsson, a Swede who was educated in France and in the USA, was being shown around the Jacarepagua circuit by Trevor Rowe, the English former secretary of the GPDA. He told GPI that a new name for the driver's association (provisionally) known as the «Professional Racing Drivers' Association) had yet to be chosen. We were told that no fewer than 25 drivers have paid the 5000 dollar subscription to join the PRDA, including Carlos Reutemann (who "forgot" to appeal against the fine imposed upon him at Kyalami), but not Keke Rosberg.

When we encountered Mr Paulsson in the paddock during Saturday practice, he was wearing a tennis shirt with what seemed to be an inappropriate motif. It was a legless frog.

A CASE OF INTERPRETATION

No rule is perfect. Nevertheless, rules are a vital guideline to any walk of life. In motorsport, as elsewhere, their formulation is no easy task.

When it was decided by those whose authority it is to do so that Formula 1 cars should weigh no less than 580 kilos, it must have seemed logical that a weight check should take place with "normal levels" of oil and water.

But last year there were occasions when some entrants, anxious to capitalise on these "normal levels", insisted that they had the right to fill their tanks to levels which would have done the car irreparable damage had they been required to run it down the road under its own power.

In their attempts to subterfuge the weight limit, those same entrants are now interpreting the failure of the rules to forbid what has becose known as "disposable ballast" as on OK for cheating. They are fitting to their with large water bottles plumbed, through small electric pumps, to the brakes.

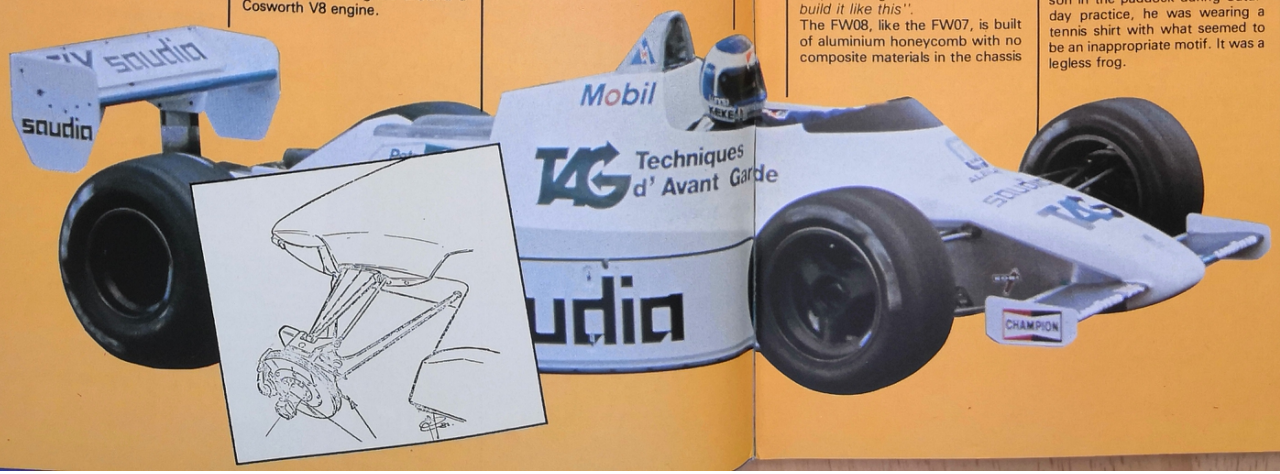
Having assured themselves that the bottles were no more than a ruse, in Rio both Ferrari and Renault protested the weighing procedure in post-race parc ferme. At least one entrant had taken the opportunity to fill up water thaks and oil reservoirs to levels at which the car had not, and was not capable of running at, in qualifying, or race.

The Ferrari/Renault appeal has since been denied by the Stewards of the meeting on the grounds that the "normal" means of scrutineering were not transgressed in Rio. Ferrari and Renault have now made a joint appeal to the Brazilian Confederation, and will go further if necessary.

Whatever happens, it could be months before the dispute has been clarified and a workable rule introduced. Meanwhile, there is a risk that some of the less well-engineered F1 cars will appear with dubious structures made of defective "exotic" material. The possible consequences are obvious.

We spotted among the officials at Rio this week Noscar's Mr Bill France, who has adopted the uniopely American habit of keeping to himself the right to change racing rules whenever he deems it necessary to do so. Maybe Formula 1 needs an adjudicator like Mr France to make fair workable rules which enjoy the respect of all. That way, we may have less arguing and safer motor racing.

Jeff Hutchinson



BALESTRE: "I RESIGN, UNLESS..."

FISA's controversial president Jean-Marie Balestre issued a statement in Rio formally promising the drivers votes on the F1 Commission and a complete redrafting on the "superlicence" form which set off their Kyalami strike.

At next month's Casablanca congress of the FIA, he said, he will present "the necessary and indispensible reforms to save Formula 1"

Among his suggestions are aerodynamic, type and engine power restrictions, and proposals to stop price escalation and save energy. He will call for "draconian" fuel consumption rules, which must worry teams using turbo engines.

If the FISA/FIA meetings in Casablanca turn him down, Balestre said "I will hand in my resignation... leaving to others the responsibility for the world championship and the lives of the drivers".

In an exclusive story, Keith Botsford reveals the documented history of Balestre's much-discussed war record, and talks toi "Monsieur le President" about power and politics in motor sport, and how to win and use them. (Copyright)

Monsieur le President, as florid, seersuckered and hyperkinetic as usual, has not had a good new year. There had ben that "affair" in Sunnyside Park, carefully covered over bythe Appeal Tribunal ; there had been some all-too-casual asides in Sweden and Portugal, the one saying he didn't give much of a damn about the press, the other that turbos were about to be banned ; there had benn a campaign mounted against him in France, not without venom and malice ; there had been en open quarrel with Renault and finally, the publication in Italy of a tendentious document seeking to inform the world that M. Balestre's past was not something into which he would wish the world to dip too deeply.

Thus, when I talked to him one meagre Rio morning in the lobby of the Hotel Nacional , Monsieur le President was feeling more than usually harassed and put upon. His staff sat on stiff banquettes and hopped hither and yon fetching this document and that, and the least you could say about the man whoruns our sport is that he is no idler. Up at four that morning, as he said, he dad done a full day's work before anyone else was up. How did he stay ahead of his tasks (and his enemies) ? Ah, that was a matter of knowing one's files. I could see them, too, a model of order. But then Monsieur le President is, like myself, a man who does not like tostand still, still less, apparently, to sleep.

We conversed, first, on the "Italian affair". That, he said, bothered him not at all. « I have been judged and I have a clear conscience "he said". "One can only inquire into the motives of those who choose to publish suchthings about me." But, inquire as I would, M. Balestre seemed to think it was plain that the motives were political and the impetus came from within the motor racing family. It was a concerted campaign.

As it happens, I can shed some small light on this whole "past" of our President, and it might be the appropriate moment to do so. After all, there is nothing new in the statement that M. Balestre was at one time accused of collaboration with the SS during the lastwar. The facts — or at least the documents — tell another story.

In his youth — indeed his very great youth, since he was merely fifteen — M. Balestre, having benn a militant member of the International League Against Racism and Anti-semitism, went to Spain as a volunteer for the Republican side during that unhappy Civil War. Repatriated four months later, he joined the stafff of the League's journal, appropriately called the "Right to Life", and also became one of the close aides of Bernard Lecache, the League's president. Thus, in 1938 to 1939, he is à much sought-after speaker in anti-Nazi campaigns, not only for the League but for the Universal Peace Assembly. In November, 1939, he enlisted in the army, but, not having been called up (he was barely 18) by May 1940, when France collapsed, he was responsible for supervising the evacuation of 2,000 refugees and, a month later, in the South, he organized a group of young anti-Nazis, returning North to Paris to distribute anti-Nazie tracts. In July, 1940, having turned 19, Balestre joined, or rather infiltrated, the Youth Front but was soon expelled, after interrogation by the Gestapo, as an **agent provocateur.**

For the next two years he was deputy head of a youth camp in Brevannes, but made regular clandestine trips into the Free zone, where he supplied forged papers to the Resistance. In 1942, nearly 21, he joined one of the major resistance groups.

There, his orders were to infiltrate the pro-Nazi volunteer groups then being formed in Belgium. This led him to join the Marshall's Youth, the marshall in question being Petain, and he soon became its head in occupied territory. In November, 1942, he joined the NSKK where his task was to recruit French volunteers for the Waffen SS.

Six months later, now in charge of recruiting for the Eastern Front, Balestre and a few friends decided to pass to direct action and hatched a plot to blow up Waffen SS headquarters. Unfortunately, the plot was betrayed three days before it was to be put into action and Balestre was arrested, tortured by the Gestapo for six months and then put into the condemned cells at Fresnes jail in Paris. In August, 1944, he appeared before a German military court and was deported — to such choice concentration camps as Danzig, Orianenburg, Dachau and Herzbruck, being liberated from the latter on April 17, 1945.

Back in France, however, where the nation was in a fever of guilt at its own collaboration and urgent with desire to punish all collaboration with the Nazis, Balestre's arrest for "intelligence with the enemy" had been ordered, and on his return to France in May, 1945, he was duly arrested and imprisoned. Suffering from typhus and diptheria, his case did not come to court for 18 months ; he was freed in May, 1947 and final judgment, in his favour, was made in September, 1947.

This clarification may be a bit long, but I have seen the documents and they are genuine. It is perhaps time, having laid that gost, to return to our picaresque president's more current activity.

On the press, for instance ? Did he really say he didn't give a damn about the press ? Well, perhaps he did. "It was just a throwaway remark", says our all-toohuman president. "I had been the object of a campaign of vilification, I was facing 150 journalists somewhere just short of the North Pole and it was a joke. It is true that I do not have respect for part of the press. Freedom requires responsibility. True, all polemics are worthwhile but the rules of the profession must be observed. If **L'Equipe** can call FOCA an "outlaw organization", that is defamatory. It is only not libelous if you can prove it's true. It is not serious journalists I object to. The press is a serious business — I have been concerned with it all my life, it being one of the two passions that have governed my life — the press and motor sport — and a writer can make or unmake a reputation. It behooves him not to doso without accepting the corresponding responsibility".

How about the turbos ? Did he say they were going to be banned ? "I have no intention of banning turbos", says Balestre categorically. "It was another off-the-cuff remark after Renault had launched a public attack on me. I did not feel particularly well-disposed towards them. But as I wrote them recently, both as a sportsman and a patriot, I would be delighted if Renault were towin the world championship."

"There is a consistent logic to my life", explained the president. "After 40 years of work, I could well retire, but I prefer to devote myself to those things I fel passionately about. I founded Auto Journal and took it to a circulation of 600,000. I founded the FFSA and then sought to internationalize the sport, to rid it of national rivalries. I do not apologize for running for office. I knew that if I was to be elected to the presidency of FISA I needed both a program and a campaign. I campaigned and I won, with 50 % of the votes. And I won on the basis of my program: to create internationalism in the sport, to reform the four championships, to restore the power of the sporting authority and to reduce the cost of competition. "Having a program is politics. Being president of anything is a political job. I have carried through my program, not by idly expecting it to succeed, but by attention to detail, by buttonholing one and all — in short, by politics. A sporting authority today must be managerial in attitude. Gone are the blue blazers and the carnations in the buttonhole. Last year I was reelected with 70 % of the votes and I think I have earned my good-conduct medal. My political strength derives from consultation, from convincing others, spending thousands of hours in persuasion ; and also from getting up at four in the morning and doing a day's work before anyone else is even awake.

"Yes, I am a political being. I take politics in the root sense of the word, that being to direct the efforts of the **polis,** or the city. To direct means having a direction, a sense of the short, the middle and the long term, in short, a program. If you have those, you will not be overtaken by events or the unforeseen. Politics is the opposite of empiricism ; it si making things happen, not observing the event."

And with that, Monsieur le President leapt out of his seat, picked up his amassed dossiers, stuffed them, in impecable order, into his capacious briefcase, signalled to his underlings magisterially, grasped my hand and with his well-known gesture — akin to making sure his interlocutor does not get away while something important remains unsaid — and sped away to Jacarepagua todo further battle with the forces of unrighteousness. After all, to take a public position of any king is a form of obsessiveness ; it requires a vocation, such as saints have, or seducers. Monsieur le President, like most of us, has a little of each. At least his errors are not petty.

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THE FRIENDLY RIVALS

When the turbocar hit trouble in the heat at Rio, what was left was a sterling battle between Nelson Piquet and Keke Rosberg. It was as good as anything that went on last year between Piquet and Rosberg's Williams predecessor Alan Jones..But this sarap had an unusual note of respect between the drivers...

by Mike Doodson

Six PM after the race at Rio's Jacarepagua circuit : in the paddock there are scenes of varying degrees of chaos as the aftermath of a super Grand Prix. Fresh in the memories of everyone is the battle between Nelson Piquet and Keke Rosberg for what was to be victory.

Mechanics are loading up trucks with bits of racing cars in readiness for the long trip to Los Angeles and the next race. They speak english and french, italian and portugese, but most of them ar still talking about the race. The same languages predominate in the press centre, although the unfortunate journalists there are more than agitated because all of the circuit's 22 telex machines have been deprived of power and there is no sign of it being restored.

Some of the journalists have made a quick dash downtown to Rio's famous Maracana stadium, where Brasil's World Cup team is meeting West Germany. Still others, though, are standing under a colour TV in the cafeteria, drinking cold Brahma Chopp beer and trying to de code the double-barrelled tirade of supersonic gobbledegook which makes Brazilian soccer commentators unique in the world.

Yet only a few feet away, in the coolness of the Brabbam garage, is a tan young man in blue shorts, a white tennis shirt and braided navy Parmalat cap. World motor racing champion Nelson Piquet, showing not a sign of the fatigue which had prostrated him on the podium, is spending time with his mechanics, the people whose company he relishes most in racing.

Not many pressmen enjoy Nelson's confidence, but in this sort of mood be would be ready to answer even the most banal type of question. Not that you would want to interrupt him, because he's in full flood right now, and his subject is other racing drivers.

« Keke (Rosberg) is the sort of driver you enjoy to race with, » he says. « He is very hard but he is fair. Alan Jones was also very hard, like Keke. The difference is that with Alan Jones, in a race like we had today, he would have tried three times to push me out of the track. »

No doubt he reflects on incidents like Zolder last year, where he came off worst in a clash of wheels with Jones. What about Gilles Villeneuve, though ? Surely the champion wouldn't want to try to share the same piece of road with a firebrand like him ?

He grins. Like other drivers (Jones was one), he obviously has a special compartment in his file of rivals for Gilles. Why, he even sympathises with him. "Oh, Gilles was in a very bad situation today. His car was very slow round the corners and fast down the straights. When is tyres started to go off, he could do nothing against me and Keke."

"We came into this corner together. What could he do ? The outside was completely dirty... and my luck was a little bit good, because Gilles go slightly wide. I came to pass him. He go slightly less wide and tried to put the power on and not let me through.

"When I saw this, I leave my braking to the *last possible moment*... and when I brake I wait to see what he is going to do. And he passes... like a train ! But he was so far in the dirt that there was nothing he could do. He went off the road and then came back. I only just managed to avoid him."

Earlier in the afternoon, next door in the Williams camp, a moustachiœd Finn in blue overalls that were so soaked in mineral water an sweat that they weighed almost three times as much as when dry was being interviewed by rather more people.

Keke Rosberg was sharing a sweet moment, 2nd place in the Brazilian GP, with a larger gathering of well-wishers and pressmen. He was also talking about other drivers, and his subject was Piquet. He is being so generous that one wonders if that night they all spent in each other's company at Kyalami has turned them into a society of unhealthily mutual admiration.

"You need *so much* concentration and physical strength to drive these cars. But I'm sure that what carried him throught to the end of the race was sheer willpower. He was finished when it was over, he was just driving on auto pilot for those last few laps."

Rosberg reckons that he could have won this GP. But just to finish a GP, let alone do well, is such a new phenomenon for him that there is no bitterness when he blames himself for not winning.

"I was 2nd on the first lap... until those bloody Renaults came by on the straight, the two of them. They're so powerful that you daren't even try to block them, because they'd just drive over you. But they didn't last : Prost told me he had tyre troubles with his, so I suppose they pay a penalty for having all that power.

"I should have won, though. I had chosen to set the car with too much understeer and too much wing. It was much too "pointy", and the steering was so stiff that the wheel was being wreched out of my hands, sometimes four or five times in the same corner."

An italian journalist steps forward. "Tell me, Keke", he says, "ow many races ave you won in F1 ?" The Finn grins: "Frank Williams asked me the same question just now. I suppose the answer has to be not many."

"Yes, I'm happy with this result. But a racing driver has to set objectives for himself, and mine is to win one soon."

GP success is unlikely to change Keke. He's been around Formula I too long, ever since he won that debut F1 International Trophy race at Silverstone in 1978 for Teddy Yip, to allow that to happen now.

No doubt he'll be forced to hide himself away like the others. In Brazil, though, there are no mobile homes in which the "personalities" of the sport can conceal themselves. It makes a change to find two drivers who are prepared to talk about each other with such genuine admiration.

Maybe we'll be coming back to them later in the year to find out if they are still celebrating their Rio "honeymoon". □

EXTRA, EXTRA

DOUBLE BLOW FOR LIGIER

Although he's now the guiding hand at Alfa Romeo, french engineer Gérard Ducarouge is something of an expert on Ligier affairs. That's not surprising, for he worked at Vichy for almost ten years, and designed the current JS 17.

A couple of week before the Brazilian GP, Ducarouge told a group of french journalists that he could foresse problems for his old team at Rio. "They'll pay the penalty for not testing," he said.

And so it was to be. While other major teams acquired vital experience of the bumpy track with their 1982-specification cars, the Ligier engineers and mechanics were pressing ahead back home on the new JS 19 model expected to race first at Zolder.

However wise the decision not to test at Rio may turn out to be in the long run, it wazs clear at the end of practice that it had immediate serious repercussions. The team which had finished 1-2 at Interlagos in 1979 had only just managed to scrape on to the grid in 1982. Laffite's engine out every time he turned right, and Cheever was in electrical trouble which seemed to be just as bas as it bad been six weeks earlier in South Africa.

In the race, both Ligier drivers had to struggle even to get into the top 20. Laffite retired with handling bothers while the unfortunate Eddie Cheever, who had been so optimistic about his new team at Las Vegas last year, had an even more ignominious retirement. Hot water leak forced him to jump out hastily right in front of the crowded pits with his backside steaming.--

M.D.

GILLES RACES REGARDLESS

Two of GPI's editorial staff in Rio got an unexpectedly close insight last sunday into the sheer competitiveness which makes Gilles Villeneuve the great racing driver that he is. Invited to ride with Gilles and his wife Joanne to the circuit in their little Fiat, we discovered that the first Villeneuve principle of motoring is *never* to stop en route, even when oncoming traffic or even policemen bar the way.

He raced exactly the same way on Sunday afternoon. A typical jackrabbit start, an early charge when perhaps he should have been considering his tyres: he probably didn't expect to finish, but he certainly didn't propose to allow anyone else to lead!

When Nelson Piquet got colse enough challnge the Canadian on lap 29, he drew level under braking for the tight left-hander called *Nonato,* dust spurting out from his tyres. But if Piquet braked late, Villeneuve left his braking even later. The Ferrari crabbed over the verge into the dirt, and got horribly out of shape. Piquet missed a collision as it snapped back on to the tarmac, going off backwards into the catch fencing. He unbuckled his belts, sat a moment on the barrier, then ignored the instructions of marshals, and set off back to his pit.

Later that evening in the hotel lobby he was able to be philosophical

mights "I pushed it just a bit to hard," he "But it was better to have done that than the alternative, wich would have been to let others go by me and gradually sink to 2nd, 3rd or 4th place before making a pit stop for tyres and having to make do with 8th place in the results."

M.D.

ALFA ROMEO SECOND GENERATION

The new "182" is the ideal representative of the second generation of Alfa Romeo Formula 1 cars. Designed under the direction of Gérard Ducarouge, it embodies all of the most advanced automotive technology.

It was conceived in October 1981 with the main objective of building a wing-car with improved negative lift, less CX, and which would be at the regulation weight limit.

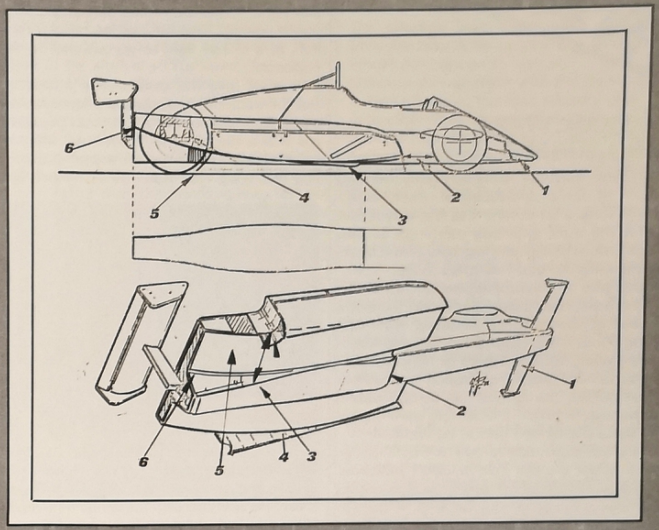
Frame

The Alfa Romeo 182 has a carbon fibre honeycom frame built in England and pressed in two half-shells. As compared with the "179", which was an aluminium honeycomb, the weight saving is 20 kilogrammes. The new body weight approximately 30 kg.

The new carbon fiber frame technology has already been tested on the "179 F", which should therefore be considered a transition car.

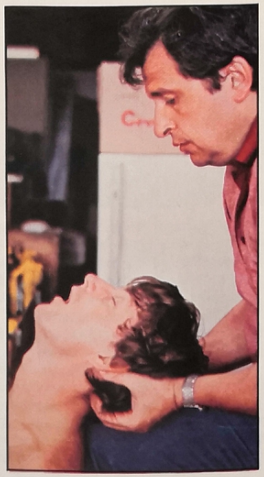
Suspension system

Conventionnal type made of special steel.



Gearbox

The gearbox casing has been redesigned internally and externally. It's slimmer in the shock absorber connection area and for aerodynamical reasons the control has been placed on the upper part of the unit.



The Ultimate Price

Grand Prix cars with virtually no suspension movement combined with fast and bumpy circuits like Rio are creating ever increasing physical demands upon their drivers. This was especially bad here, most drivers resorting to wearing thick special neck supports, bolting supports to their cars or even tieing their helmets to their shoulders in a bid to preven their necks from giving out, although none of the devices did much to help the problem.

The situation is now becoming critical as this race showed. Nelson Piquet collapsed on the winners rostrum while his team mate Ricardo Patrese was forced to give up when he blacked out and spun half way though the race. Many other drivers were feeling little better at the end of the day including Nigel Mansell. He is one of the fittest drivers in GP racing, but an hour after the race he was still massaging a sore neck and arms while his legs were a mass of bruises ans swelling where they had been consistently slammed into the steering rack as his car bounced around on the bumps.

Normally not an outspoken driver, Mansell spoke out agains the present situation in F1 reflecting the same discontent as mot of his colleagues.

"It cannot be right when the World Champion collapses Orx the winner's rostrum after winning the race. It's just crazy the way the regulations are now.

You feel like a gladiator not a driver. In 6 months from now it's not going to be the best car that's winning the races but the strogest driver."

Most of the designers responsible for the current generation of chassis will agree with him, but untill they all agree to do something about it between themselves there seems to be little hope of a change.

We can only hope that it is not going to take an accident or injury to bring about that agreement.

Until then, it is the drivers who pay the ultimate price with abused bodies and increased risks no to mention little enjoyment in their work any longuer.

Suggest pic of neck support or similar with this piece.

PRACTICE

TALK OF TYRES AND TURBOS

The scene at 10 am on Friday morning at Rio's Jacarepagua circuit didn't look a lot different to the way it had been the three previous mornings at that time around the swimming pool of the Intercontinental Hotel a few miles away.

There was no swimming pool to cool off in, but drivers, mechanics, press and the usual quota of dark-skinned beauties were still lying about in the oppressive heat and humidity waiting for something to happen.

After several weeks of testing and empty days before, the powers that be had waited until now to decide the barriers were unsafe in some places and had to be rectified.

"We are expected to pay a 5000 dollar fine when we are late or don't practice. Who pays the bill for this?" quipped **Niki Lauda** as the man with the broken English announced the third half-hour delay of the morning while workers sweated to right the wrongs. Like everyone else, Niki was eager to get on with his job and get back to an air-

conditioned room.

Talk was of turbos and tyres. Would the Renault or the Ferrari, now as much as 40 kilos heavier than their highly lightened opposition, be able to set the pace at sea-level in temperatures that had everybody half exhausted before they had even turned a lap of this neck-breaking circuit, with its bad bumps and dips that became twice as bad in the current, almost solidly sprung, chassis?

"It's just crazy. In places your vision goes blurred with the vibration and you can hardly see the road. It's not fun any more. After a few laps it seems impossible to carry on." That was **René Arnoux** talking about testing. Now he, like the other 30 drivers in the field, had to go out and do the impossible.

The voice over the loudspeaker had declared the track finally open and a few minutes away from the mid-day sun, cars began to roll down the pit lane. Some had still not made it out before practice was stopped. The rear wing had flown off **Arnoux's** car

as he turned into the fast left-hand sweep at the end of the straight. The new lightweight carbon supports had sheared off. He was lucky. He spun off into the sandy infield and stopped without much damage to his car.

Undeterred, **Alain Prost** took up the Renault challenge and, by the end of the session, using *"an intermediate qualifying tyre,"* had set the fastest time so far and showed that this year, the turbos would be either as good or better than the rest on most tracks they would visit.

At the start it had been **Rosberg's** Williams that set the pace, but it was not long before he was back in the pits with a worried look, even though his name still headed the timing screens. *"The car is terrible. It suddenly breaks away going into the corners,"* he said as the mechanics set about pulling off and changing the things that the team had hoped would make it better.

The car was put back into its testing specification which had felt good and given him a quick time three weeks before.

He ended up sixth by lunchtime, but as he stole a quick cigarette away from Frank Williams, he predicted that he would be quickest by the end of the afternoon or that **Prost** would be the only one to beat him.

Prost did, by an incredible full second, seven seconds inside the lap record, but **Rosberg** held on to second place, demonstrating just what a good car can do for your driving and your confidence after a string of 'did not qualify' after his name in last year's races.

Prost's time was going to be hard to beat and he said he had traffic on his best lap and had more speed to come!

An engine misfire prevented him from proving the point on Saturday afternoon, but he still managed to take best time again on Michelin qualifying tyres, good for only a few laps. The Goodyear rubber is no better.

"You get only two chances and you just have to hope that you do not get traffic in your way or if you do, that he will get out of your way. It's like playing Russian roulette with five bullets some times."

Keke was worried about loosing that vital front row place to **Arnoux**, but at the end of the day it was Villeneuve who took it away with a mighty charge that left his Ferrari's rear tyres in shreds as he pushed himself, tyres and car to the limit, smoke pouring off the rear tyres under acceleration and lumps of rubber too, as he snatched a place on the front row by 5/100ths of a second. Ferrari and Renault would race each other for the first corner, but there were 63 laps to go. **Rosberg** reckoned that with their past

record on race rubber and his own good times on full tanks and race rubber that morning, he would still be in with a good chance of taking his first GP win.

Arnoux might have changed things, but the second Renault Elf was still in trouble. He had to swerve to avoid a slow-moving **Jarier** early on, and ran wide over a kerb, badly bending the underside rear corner of the monocoque and breaking an upright.

He did better than his team-mate **Paletti** however. The Italian suddenly did not have to worry about qualifying his car for the race when a lower rear wishbone came apart and

a wheel fell off early in the first Friday session, which for him was pre-qualifying.

The value of pre-race testing, from which they were notably absent, was brought home to the Talbot-Ligier team when **Laffite** and **Cheever** found themselves fighting with each other for a place on the grid. **Laffite,** who was also bothered by a misfiring engine just like Kyalami, not to mention a bad back from skiing, just managed to get on to the grid in 24th place while **Cheever** put in a last lap "eyes closed" effort to knock **Teo Fabi's** Toleman off the back of the grid.

"I missed a gear change on my quickest lap which cost me a place in the race", said **Fabi.**

His team-mate **Warwick** lost compression on one cylinder when a spark plug fell apart.

"Even so I should have got in, but I was held up on qualifying tyres and the car was terrible over the bumps," was his comment.

Guerrero ran out of time in this efforts to sort out the new Ensign which, unfortunately, he had not had the chance to drive before Friday. The only other non-starter was **Henton** in the Arrows, a blown engine on his race car forcing him to use the T-car which was still set up for 13 inch front tyres, but which had to run on 15-inch qualifiers which had already been mounted.

What was particularly frustrating for him was the fact that his morning time would have put him in the race, and his team-mate **Baldi** put on the right rubber and went two seconds faster to claim 19th place.

By Saturday afternoon, a lot of questions had already been answered, but on Sunday the big one that everyone was asking was whether it would be turbos or tyre wars that would decide the second race of the season – one that even the drivers themselves could only guess at, and hopefully have guessed right when it came to choosing a tyre for Brazil.

It was repairable, but not on the spot, so he went to the T-car which provoked another spin as the engine cut out. He had to be content with fourth on the grid.

The McLaren team looked strong here, especially **Lauda.** Despite *"coming around a corner on my best lap and finding* **Watson** *in the middle of the road,"* he set an impressive fifth place. **Watson** complained of understeer-as-usual and no clear lap on soft tyres, putting him back to a distant twelfth on the grid.

Carlos Reutemann was almost resigned to sixth place, his engine misfiring a little as he went faster than the previous day, but not fast enough to catch the front runners. "Car is good, I am driving as fast as I can - **Keke** is quick, very quick," he said back in the

hotel, looking relaxed and philosophic about things, perhaps feeling that his experience and previous success in long, hard races like this one promised to be, would count more on Sunday than the odd few tenths of a second in the mad scrabble for grid places on Saturday afternoon.

Nelson Piquet looked less at ease. *"I wasted the first set of tyres having the chequered flag waved at me every time I came to the finish line because they kept stopping practice for* **Arnoux's** crash and then **De Angelis.** Then I get a fast lap on the second set, almost a second better at the half lap point, and **Warwick** holds me up so bad I am slower than Friday when the car was not so good," said the Brazilian, extra tense under the added pressure of his home crowd. It had taken the team most of the two days to get their new car working well, but even though **Piquet** was seventh and **Patrese** ninth, they too were in with a good chance for the win.

Alfa Romeo were not so quick to sort out their problems. **Giacomelli** lost most of Friday with a misfire and than a fire in the engine compartment when a fuel line broke, the Alfa quite badly scorched before a fire marshal pointed an extinguisher at it, while **De Cesaris** lost time when the team brought him in to ensure the same thing would not happen to his car.

Giacomelli was stuck with the same misfire in his race car in the final session, plus *"an incredible handling problem that changes without touching the car,"* and he found himself back in 16th place with **De Cesaris** tenth. *"I use the T-car for the race, I think its better,"* said **Bruno.**

The Lotus team were also struggling to sort out their new car problems. They found new skirts fitted after testing gave the car much better downforce and so they had to change all the settings to suit. **De Angelis** then had a coming-together with **Winkelhock** which spoiled his final session, while **Mansell** had a gearbox problem in the morning and did not have enough time to sort his car out, both drivers setting their best times on Friday on race rubber, so they were looking for a high placing in the race.

Michele Alboreto showed that his Kyalami performance was no fluke. He went out and got what was to be 13th quickest time in the

Tyrrell, behind **Watson,** while his relatively inexperienced team-mate **Borgudd** was learning all about the art of qualifying tyres in his slightly heavier chassis, which he took to a respectable 21st place.

Winkelhock was also impressive in the ATS. An electrical problem prevented him even setting a time in the final session, but his earlier time was good for 15th, Salazar qualifying 18th, which was another good effort.

Boesel set the best Pirelli time with 17th place on the grid in the March, **Jochen Mass** not looking very happy at the end of practice with 22nd place in his March. He blamed it on the difference he found in the consistency of his tyres, which changed the handling considerably from set to set, he said.

Jarier had a troubled weekend trying to solve a fuel feed problem which meant that he had to run more than 40 litres of fuel in his tanks to ensure a clean lap, while to add to his problems, the Osella's skirts were not working as they should and his car lacked grip.

THE RACE

The first 20 laps of the Brazilian Grand Prix were something to be cherished in the hearts of motor racing enthusiasts for many months to come.

The first few rows of the grid sent up a great blue cloud of rubber smoke as they fishtailed off the line, Villeneuve timing it beautifully to lead Rosberg into the first turn. The Renaults of Prost and Arnoux were in his wake along with Patrese's Brabham, the Italian having made a fabulous start from the fifth row to take fifth place.

Villeneuve held his lead all through the twisty section after the start, with Rosberg glued to his exhausts. But as the long snake of multicoloured cars reached the first straight, the turbos stretched their legs, Villeneuve's Ferrari leaving the Williams far behind while the two Renaults swept past as if Keke had forgotten to change up into fifth gear. On lap 3, Arnoux flicked ahead of Prost, who was slowing with his engine not revving above 10,000, and Patrese took a place from Rosberg who had eased back slightly to save his tyres for the long haul ahead.

The lap also heralded the firstof many roaring cheers from the grandstands as Pironi slid sideways and almost to a complete stopwhen he lost the Ferrari. Ten cars swept past as he struggled to getmoving again in 16th place.

Piquet took Rosberg on lap 5 and a lap later had Prost to lie fourth to the delight of the crowds, who had started showering the stands with a snowstorms of paper from torn programs and newspapers -- Brazilian ticker-take. Nelson's progress continued on lap 9 when he claimed third place at the expense of his teammate Patrese. Villeneuve was extending his lead and tyre problems were already slowing Arnoux. It was all the excuse Piquet needed to take second place for the little Frenchman on lap 17.

Rosberg had started to turn on the pressure again and got back past Patrese. There was still an incredibly tough fight for the top 10 places as the traffic began to bunch up behind Arnoux, now fighting a battle of survival.

Rosberg and Patrese made short work of the Renault, leaving Arnoux and Prost nose to tail in fifth and sixth places, but about to be split by Niki Lauda.

The clever Austrian had been playing a waiting game, saving his tyres and moving up the odd place when De Cesaris ran his understeering Alfa wide. He retired to the pits with most of the aerodynamic underside dragging along the track.

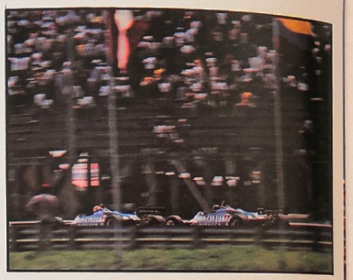
Lauda moved ahead of Prost on lap 19, but was re-passed again a lap later. Reutemann had dropped even further back behind Watson, so its was two Renaults, two McLarens and the Williams and a fight not far behind involving de Angelis; Winkelhock, Pironi, Alboreto and Mansell.

On lap 21 the magic of the race startedfading with two incidents. The first saw Carlos Reutemann try to re-pass Lauda in a similar fashion to his coming-together with Laffite at Zandvoort last year. He banged wheels with the McLaren, forcing Lauda into the pits and out of the race with a bent right rear wheel. But before the end of the lap, Reutemann was out of the race himself when he hit a spinning Arnoux, the Renault also being hors de combat.

The first corner and Villeneuve in the lead already. The chase begins. Photo: DPPI.

The view the field had of Gilles as he blistered away. Photo: DPPI.

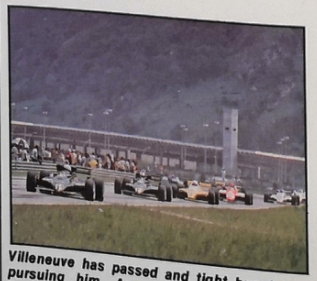
The early leaders behind the Ferrari were Arnoux, the surprising Patrese, and winner-to-be Piquet. Photo: DPPI.



In the midfield fight, the two new Lotus 91s lead Winkelhock and Giacomelli. Photo: B. Asset.

Prost fights off Rosberg as the Finn begins the climb which brought him his best ever result. Photo: DPPI.

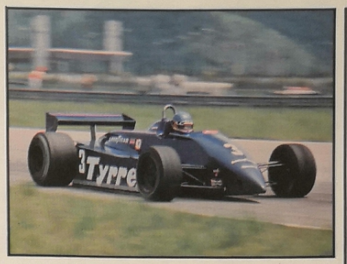
A race that Guy Ligier would rather forget. His cars only scraped onto the grid and neither finished. Photo: B. Asset.



Villeneuve has passed and tight bunch is pursuing him, Arnoux ahead of Piquet, Patrese and Rosberg. Photo: DPPI.

A puncture and spin ended Daly's first race with the new Theodore. Photo: B. Asset.

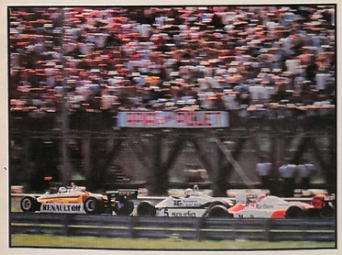
Villeneuve holds the lead as Rosberg tries to take second from Piquet under braking. Photo: B. Asset.



Rosberg got past Piquet (several times) and lined up to try to take the lead. Photo: B. Asset.

Prost's tyres were going off and he slipped back, letting Reutemann and Watson catch up. Photo: B. Asset.

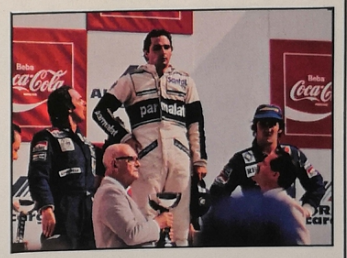
Lauda was a victim of Reutemann's badly judged passing move. Carlos in turn collected a spinning Arnoux thatlap. Photo: B. Asset.



Michele Alboreto repayed Ken Tyrrell's confidence with another fine race and a point. Photo: B. Asset.

Villeneuve preferred this to ceding the lead to Piquet –Gilles all or nothing approach. Photo: J. Hutchinson.

Piquet, though exhausted, has the race won. Rosberg and Prost follow him home. Photo: B. Asset.



He won, but on the podium the heat and the pounding overtook him, as in Las Vegas. Photo: B. Asset.

De Angelis also found himself out of the race on lap 21 when he banged wheels overtaking Mauro Baldi, the Lotus climbing up the Arrows' rear wheel and spinning off the track. Baldi stopped at the pits for fresh tyres and rejoined the race several laps down. The incidents left a big hole in the middle of the field which, just one lap before, had produced some of the best racing we have seen for a long time.

There was no lack excitement at the front, however. Try as he would, Piquet could not find a way past the Ferrari that was only feet ahead of him, while Rosberg was giving the champion even more problems as he pushed the William's nose alongside at every opportunity.

Several times the two cars passed and repassed, Rosberg leading Piquet on laps 27 and 28 only to drop behind again on lap 29. This was great racing, thanks to Villeneuve who was keeping the two cars firmly boxed up behind him.

His determination to hold the lead was his undoing on lap 30, when he tried to hold the line against Piquet's overtaking once too often, put two wheels on the inside grass and spun across the road right in front of Piquet. It was lucky for Gilles that theymissed, considering the state the Carioca crowd had worked itself up to at this stage.

Now Piquet was able to open up a breathing space on Rosberg, who was not onbly trying to stay with the Brabham but also trying to save his tyres. It was no easy task as he found the handling of the Williams deteriorating as the fuel load lightened. Added to that, it was riding the bumps worse than before, causing his helmet to shake so muchthat it was slipping on his head and partially covering his eyes!

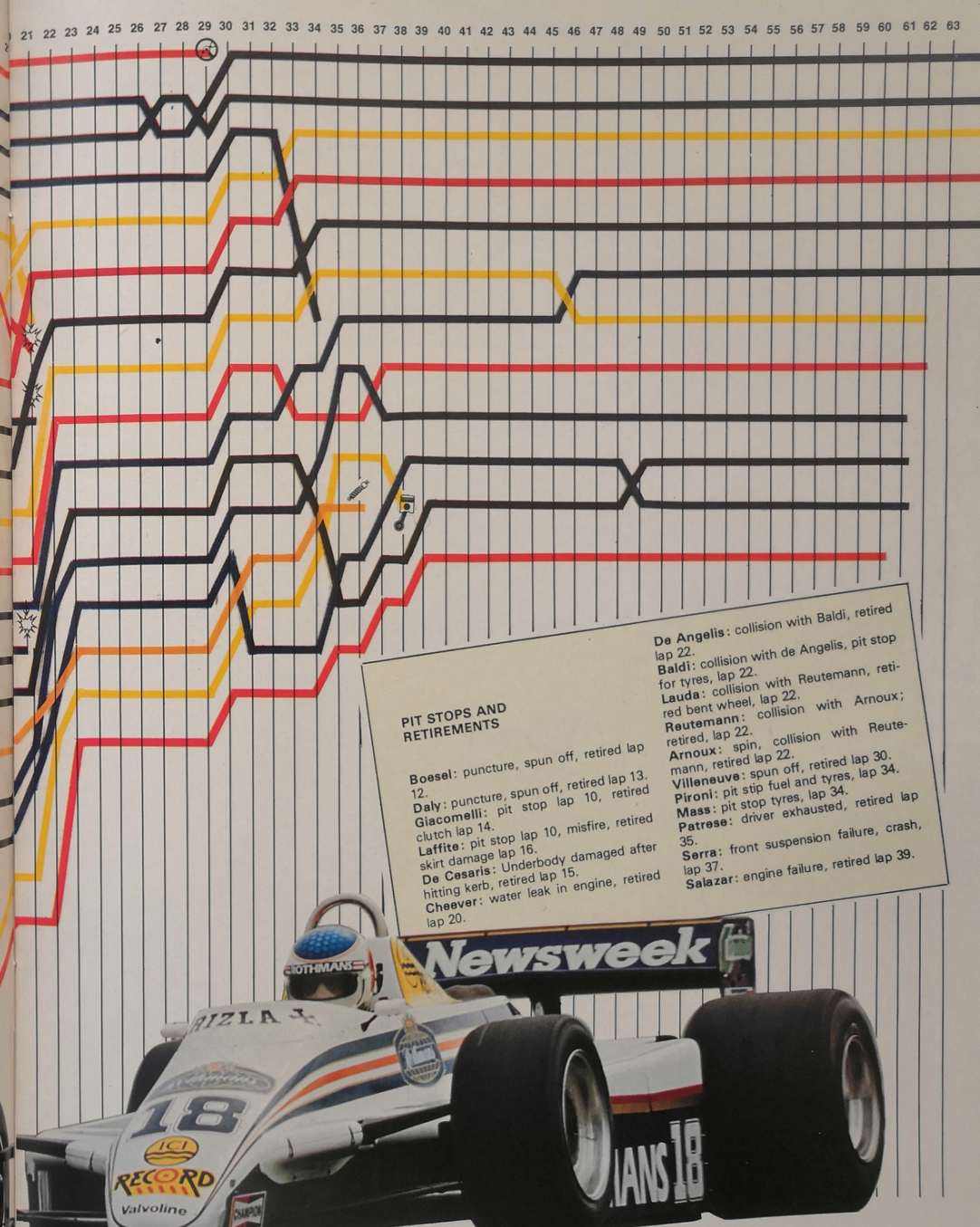
He slowed still further, trying tocool his tyres for a final challenge on the run up to the flag. With 20 laps to go Keke started to close up again, getting to within justover two seconds of the Brabham before his tyres started to slow him. With 10 laps to go, he settled for second place as the pit hung out a "cool tyres" sign.

Patrese had wisely decided tocall it a day and retire to the pits after a momentary blackout caused him tospin. Watson, still complaining of an understeering problem, found himself chasing Prost for third place, getting within three seconds as Alain slowed withtyre troubles in the closing stages.

Mansell was an exhausted fifth with his car porpoising badly at the end as the fuel load lightened, letting the skirts ride higher off the track.

Alboreto did another fine job for Ken Tyrrell to take sixth and his first championship point -- no doubt the first of many. Winkelhock took seventh spot, one lap down, after an equally impressive race, only his second F1 drive, while Pironi was eighth, having pitted for more fuel after his early spin. Two laps down, Slim Borgudd brought home another finisher for the Turrell team ahead of Jochen Mass in the remaining March. His teammate Raul Boesel had been eliminated early in the race, like Daly's new Theordore, both spinning off after punctures. The only other accident befell Chico Serra, andhe was lucky to escape unharmed when his Fitiipaldi plunged off the road after a front suspension failure. □

Lap by lap - Giro per giro - Runde um runde - Tour par tour - Vuelta a vuelta - Ron



PIT STOPS AND RETIREMENTS

Boesel: puncture, spun off, retired lap 12.
Daly: puncture, spun off, retired lap 13.
Giacomelli: pit stop lap 10, retired clutch lap 14.
Laffite: pit stop lap 10, misfire, retired skirt damage lap 16.
De Cesaris: Underbody damaged after hitting kerb, retired lap 15.
Cheever: water leak in engine, retired lap 20.
De Angelis: collision with Baldi, retired lap 22.
Baldi: collision with de Angelis, pit stop for tyres, lap 22.
Lauda: collision with Reutemann, retired bent wheel, lap 22.
Reutemann: collision with Arnoux; retired, lap 22.
Arnoux: spin, collision with Reutemann, retired lap 22.
Villeneuve: spun off, retired lap 30.
Pironi: pit stip fuel and tyres, lap 34.
Mass: pit stop tyres, lap 34.
Patrese: driver exhausted, retired lap 35.
Serra: front suspension failure, crash, lap 37.
Salazar: engine failure, retired lap 39.

ronde - Lap by lap - Giro per giro - Runde um runde - Tour par tour - Vuelta a vuel

Rio de Janeiro statistics

BRAZILIAN GP

Date: 21 march 1982
Circuit length: 3,126 miles
Race distance: 63 laps, 196,974 miles
Weather: sunny, very hot and humid
Attendance: 40,000 spectators.

PREVIOUS WINNERS

(last five years)

1977: Reutemann (Ferrari)
1978: Reutemann (Ferrari)
1979: Laffite (Ligier Ford)
1980: Arnoux (Renault)
1981: Reutemann (Williams)

Did not qualify:

FABI (Toleman TG 181) 1'35"326
GUERRERO (Ensign M181) 1'36"730
HENTON (Arrows A4) 1'35"748
WARWICK (Toleman) 1'36"0??

STARTING GRID

VILLENEUVE
Ferrari 126/C2
1'29"173
ARNOUX
Renault Elf RE38B
1'36"121
REUTEMANN
William FW 88
1'30"183
PIRONI
Ferrari 126/C2
1'30"655
DE CESARIS
Marlboro R.R. 182
1'31"229
WATSON
Marlboro MP 4B
1'31"986
HANSELL
JPS Lotus 91
1'32"228
GIACOMELLI
Marlboro A.R. 162
1'32"769
SALAZAR
RTS D06
1'34"262
DALY
Théodore JY-81
1'34"413
MASS
March 821
1'35"039
LAFFITE
Talbot Ligier JS17
1'35"084
CHEEVER
Talbot Ligier JS 17
1'35"288
PROST
Renault Elf RE30B
1'28"888
ROSBERG
Williams FW 08
1'29"358
LAUDA
Marlboro MF 40
1'30"152
PIQUET
Bradham B 149 D
1'38"281
FRIRESE
Brabham B1 490
1'30"967
DE ANGELIS
JPS Lotus 51
1'31"798
ALBORETO
Tyrrell 811
1'31"991
WINKELHOCK
ATS D06
1'32"524
BOESEL
March 821
1'34"050
BALDI
Ragno Arrous A4
1'34"388
BORCUDD
Tyrell 811
1'35"020
JARIER
Denin Osella FA 1C
1'35"081
SERRA
FITTIPALDI F8 C
1'35"246

TIME IN UNOFFICIAL PRACTICE

	Friday morning	Saturday morning
PROST	1'31"550	1'34"877
REUTEMANN	1'31"212	1'36"140
VILLENEUVE	1'31"776	1'35"869
LAUDA	1'31"883	1'36"341
DE ANGELIS	1'31"912	1'35"945
PUSBERG	1'32"049	1'35"970
WATSON	1'32"358	1'35"380
MANSELL	1'32"588	1'36"249
ARNOUX	1'33"315	1'37"470
PIQUET	1'33"377	1'35"277
DE CESARIS	1'33"455	1'35"889
PATRESE	1'33"821	1'35"926
HIBORETO	1'34"086	1'37"468
GIACOMELLI	1'34"188	–
PIRONI	1'34"830	1'32"301
WINKELHOCK	1'35"212	1'34"695
HENTON	1'35"966	–
BOESEL	1'36"052	1'35"934
SALAZAR	1'36"548	1'35"200
BALDI	1'36"645	1'32"203
CHEEVER	1'37"354	1'33"444
LAFFITE	1'37"508	1'32"276
BORGUDD	1'37"622	–
JARIER	1'37"705	1'32"518
DALY	1'37"865	1'33"264
WARWICK	1'37"932	1'35"777
SERRA	1'37"948	1'35"975
MASS	1'38"903	1'32"663
FABI	1'39"358	1'33"526
GUERRERO	1'39"809	–
PALETTI	1'42"487	1'33"329
ALBORETO	–	1'36"172
ROSBERG	–	1'35"471
		1'35"474

F1 CONSTRUCTOR'S CUP

1. Renault 17 pts - **2.** Williams 14 pts - **3.** Brabham 9 pts - **4.** Mc Laren 7 pts - **5.** Lotus 2 pts **6.** Tyrell 1 pt.

PROVISIONAL DRIVERS' WORLD CHAMPIONSHIP PLACES

Position/Driver	South Africa	Brazil	Total
1. PROST	9	4	13
2. PIQUET	–	9	9
3. ROSBERG	2	6	8
4. REUTEMANN	6	–	6
5. ARNOUX	4	–	4
5. WATSON	1	3	4
7. LAUDA	3	–	3
8. MANSELL	–	2	2

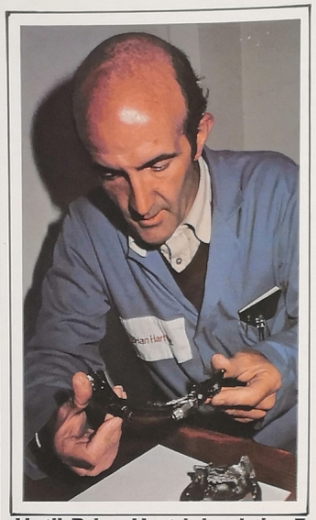
RESULT

1. PIQUET	Brahbam BT49D	63 laps in 1 h 43'53"76
2. ROSBERG	Williams FW 08	11"977 behind
3. PROST	Renault RE 30 B	39"374 behind
4. WATSON	Mc Laren MP 4 B	42"364 behind
5. MANSELL	JPS Lotus 91	1'16"233 behind
6. ALBORETO	Tyrell 011	1'30"136 behind
7. Winkelhock	ATS D06	1 lap behind
8. PIRONI	Ferrari 126/C2	1 lap
9. BORGUDD	Tyrrell 011	2 laps
10. MASS	March 821	2 laps
11. JARIER	Osella FA 1 C	3 laps
12. BALDI	Arrows A4	6 laps

THEIR FASTEST RACE LAPS

	Time	Lap n°
Piquet	1'36"582	4
Rosberg	1'36"984	19
Prost	1'37"016	36
Watson	1'37"541	22
Marrsell	1'38"136	23
Alborebo	1'38"027	14
Winkelhock	1'38"958	11
Pironi	1'37"129	57
Borgudd	1'40"075	19
Mass	1'40"094	36
Jarier	1'41"838	18
Baldi	1'41"919	24
Salazar	1'39"733	30
Serra	1'42"030	32
Patrese	1'37"742	28
Villeneuve	1'38"514	27
Lauda	1'37"364	11
Arnoux	1'38"612	4
Reutemann	1'38"108	5
De Angelis	1'38"046	5
Cheever	1'40"889	6
Giacomelli	1'37"726	5
Laffite	1'40"521	14
De Cesaris	1'38"472	4

HART: THE ENGLISH TURBO WIZARD



A smart Capri outside... and a lot of hard work inside. Brian Hart examines some components which didn't work perfectly first time.

Until Brian Hart joined the Formula 1 circus, turbocharging was thought to be strictly a continental speciality. First as a driver, and more recently as a builder of F2 engines, Hart has a reputation which he is now determined to establish in Grand Prix racing. He also has some unconventional views on F1, at least for an Englishman...

by Maurice Hamilton

People don't often frame race result bulletins, but Brian Hart has every reason to hang the official results sheet from the 1980 Zolder Formula 2 race on his office wall. Hart-engined cars filled the first four places; an achievement of which any independent engine builder would have been proud.

Twelve months later, values had changed. As part of the new Toleman team, Hart had joined Formula 1. Simply to qualify became a major achievement. And for Brian Hart, the hard slog came as no surprise.

From the moment when the decision was made to take part in the 1981 San Marino Grand Prix and, more importantly, the following 11 races stacked up at fortnightly intervals, Hart realised that development of his type 415T 4-cylinder turbo would almost cease as the Candy-Toleman effort worked flat out simply to keep racing. Or, to be precise, practising. *"It really was lunacy"*, says Brian with a mild hint of frustration. *"I'm not saying that with the benefit of hindsight. I thought at the time that it was lunacy to go straight in like that and therefore risk comparison with Renault and Ferrari.*

"Originally I wanted one year in which to run and develop the engine. But circumstances — such as the Concorde Agreement, for example — dictated that we had to decide whether to go racing or not. At the time, it seemed that if you didn't join Formula 1 then, you could never join at all".

Join they did and the Toleman team met its obligations to the letter. Along the way they suffered non-qualification after non-qualification, but the appearance of Hart's monobloc engine at Zandvoort brought a flicker of light at the end of the tunnel.

"We had been doing a lot of development work on our Formula 2 engine as used by Toleman during their championship year in 1980," recalls Brian. *"The plan was to continue in Formula 2 even more competitively and the idea of a monobloc four came from our research. The intention was to develop and race it in Formula 1 from the word go, but our commitment to start at Imola changed that. The point in our favour was that we were able to use the Formula 2 block, modify it to obtain the monobloc and thereby cut down some of the lead time.*

"Some of the advantages of the monobloc were not immediately apparent but the devious one was cutting out the potential gasket problems associated with very high pressure ratios. The first tests with the prototype were incredibly encouraging and during the past winter we've had time to refine a few casting problems which we had. The

engines we have built so far have been very satisfactory indeed''.

As if planning a Formula 1 engine was not difficult enough, Hart moved premises during the winter of 1980/81. Brian and his staff of 23 have settled into a new factory on a bland industrial estate near Harlow in Essex. The atmosphere on the busy shop floor mirrors what must go on inside a Hart engine: impressive machinery meshing together efficiently, with the end result proving its worth in power on one of three dynocells.

With his involvement in Formula 1, Hart needs three dynocells to keep pace in the turbocharged horsepower race with Renault, Ferrari and BMW. David versus not one, but three Goliaths. The prospect excites Hart.

''You arrive at a race track, take one look at these teams and their resources and think 'My God, you really are up against it.' But, in a way, that makes it more stimulating and interesting. If they do something that is very clever engineering-wise, then that excites me. I appreciate intensely various aspects of what all three manufacturers have done.''

Obviously, Hart casts a critical eye over the work of his rivals and his personal observations are worth recording.

''The V6 engine offers very sound installation advantages, even though it tends to double up on components. I would say that, at the moment, the Ferrari set-up is more or less the optimum. They have a neater arrangement than Renault by having the induction reversed on the heads and tucked partly into the vee, whereas the Renault has the induction through the heads with the exhausts underneath. This means two sets of exhausts, two turbos, two wastegates, all miles apart, and lots of trunking. Of course, Renault have put a very good package together - but they've had a head start on Ferrari.''

Hart quotes 550-560 bhp for his engine and it's the horsepower question which agitates the anti-turbo lobby and brings talk about restrictions. Fuel flow metering devices have been mentioned but, in Brian Hart's opinion, if there were to be a limiting factor then a fuel capacity restriction would be more practicable. Fuel flow metering cannot be policed satisfactorily.

''It would be impossible to put a device on the various engines which would be thoroughly reliable and yet easily scrutineered. A fuel capacity limitation would be easier to check and perhaps have a more practical value.

''I can see a situation arising where you have cars with enormous amounts of horsepower which enable them to gain time on the road and then stop for fuel. Now we could have a ban on pit stops for fuel. My thoughts are that a straight-forward fuel capacity limit is the way to limit outrageous horsepower if people are worried about it.''

Economy in every department is very much on Hart's mind. He is, as he says, always looking at ''the bottom line'' of his finances when it is borne in mind that providing engines for a two car team, plus a spare, in 1982 will cost £700,000. Clearly, neither Toleman nor Hart has engines to burn, although Brian is adamant that 'qualifying specials' are rare in the turbo world in general.

''It was against my personal policy to sacrifice an engine for a grid position last year. There was the odd occasion when, because we were so close, we might have done so. But we weren't in a position to lose engines. I think it is fair to say that at the present state of development you no longer need to use what the anti-turbo league call a 'qualifying engine'. I think the opposition runs at race boost throughout the weekend. They may risk an engine if it is about to be replaced anyway and they are close to pole and everything is right. But I think that happens far less than it did a few years ago.''

Stepping into Grand Prix racing from Formula 2 has given Hart the opportunity to take a fresh look at procedures which the Formula 1 circus accept as normal. Two obvious faults stand out: *''Racing once a fortnight is out of date and escalates the costs. I think that's obvious. The second point is that the time limit between untimed and timed practice is ludicrous, even for a so-called kit car team, because it forces them to have a totally reliable third car. An extra hour between sessions and the odd three week break between races would be much more practicable.''*

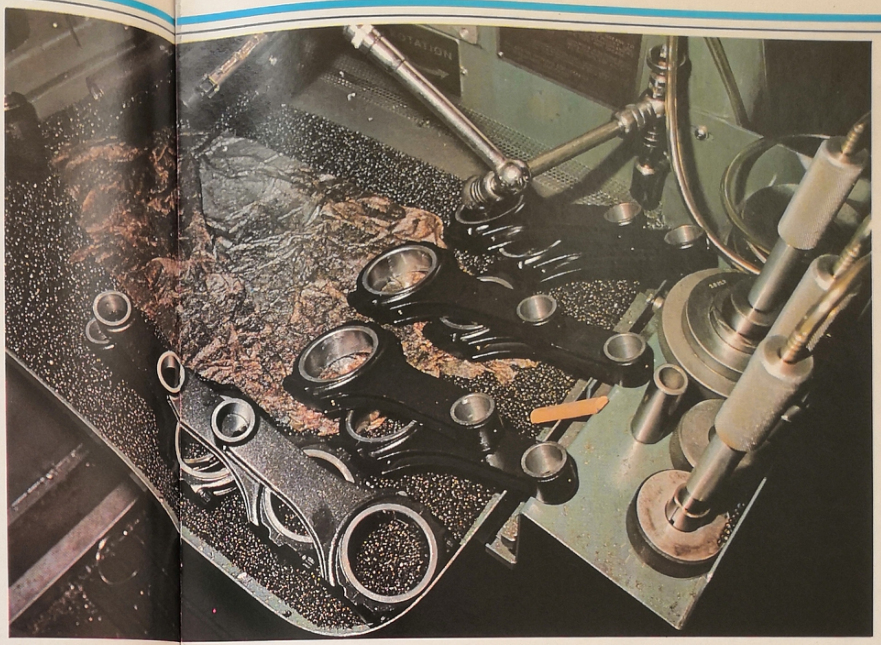
Being practical is an essential part of Hart's business: it means working today with an eye to the future. Hart is the major shareholder in his company and, apart from a major contribution from Toleman, the business is run entirely without outside support. How, then, would Hart react if approached by another team for use of his engine?

''If it were the right team with engineers capable of reading our requirements and the problems brought about by those requirements, we would be interested in running the engine with another team. We have enlarged our facilities with that in mind. We are not bound exclusively to Toleman although, naturally, we have first call to them. The original concept was to run with at least two teams.''

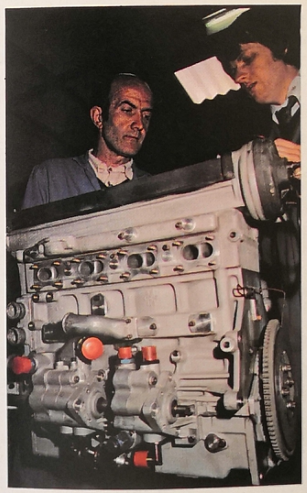
''On the more commercial side, we have always had the problem of not having a manufacturer's backing and the clout associated with their name when it comes to obtaining supplies and opening doors which would otherwise be closed. We are, in fact, working towards involvement with a manufacturer...''

After a tough year in 1981, Brian Hart is under no illusions about the future. It's worth noting, therefore, that he is quite confident about being comparable, ''if not slightly better'', than BMW at the end of the season. It's not an idle boast. Is it possible that one day he might frame a Grand Prix result sheet showing a Hart 1-2?

''No,'' he says with a wistful smile. *''I don't think that's a probability. The problems of running a turbo engine reliably in a Formula 1 car under race conditions are considerable and I don't see for some time there being a situation where you have ultra-reliable turbo cars. You only need to have the tiniest thing go wrong and the chain reaction in the ancillaries to the engine is much greater than the highly developed 3-litre engine. For that reason alone, it is going to take a little while to get all the various bugs in the system ironed out. ''Perhaps this is part of the challenge...''*



Connecting rods and other parts ready for assembly.



He may be the boss, but Brian likes to do some of the work himself and only takes off his blue coat when he goes home.

BRIAN HART: THE MAN

A look at Brian Hart's desk tells you all you need to know. Scattered among valve guides, spark plugs, waste gates and ignition equipment is a book on the BRM V16 and a well-thumbed copy of comic writer Spike Milligan's 'Puckoon'. Clearly, here is a practical engineer with a sense of humour and enthusiasm for the history of the sport!

The attraction of the BRM book with its splendid cutaway drawings may seem obvious. But the car and its complex V16 engine hold more than a technical interest for the 44-year-old engine builder.

''That's what started it all for me,'' he says with a wide-eyed expression. *''Goodwood... Madgwick... Gonzalez perched high in the open cockpit... reaching down for that massive gearlever... powering the thing out of sight... incredible...''*

Surprisingly, it wasn't the technology involded in the car which hooked Hart; it was the business of driving the green machine quickly. He made up his mind there and then that he wanted to be a professional racing driver.

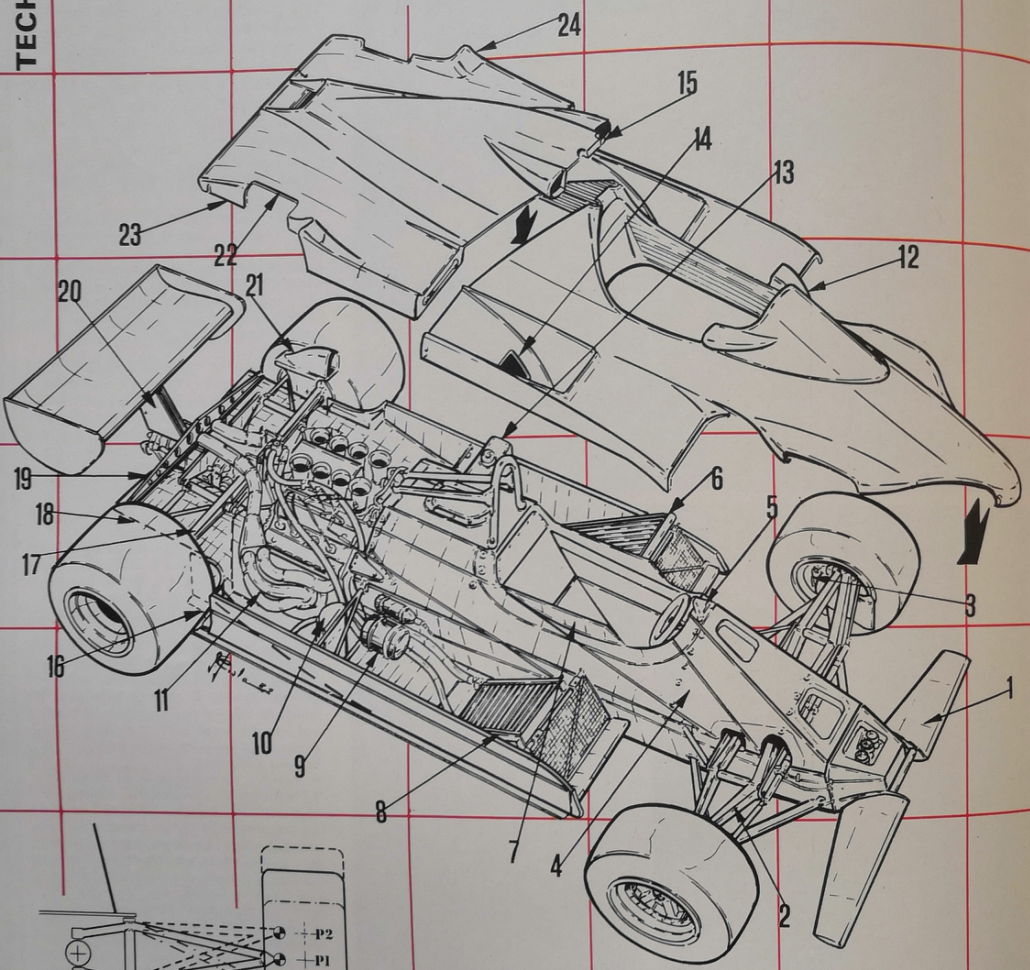
Before taking to the track, however, he served an apprenticeship with De Havilland at Hatfield and earned his colours as an aeronautical engineer. A course on the advanced theory of the Otto cycle engine followed, and later he spent about four years as an employee at Cosworth working on the FVA Formula 2 engines.

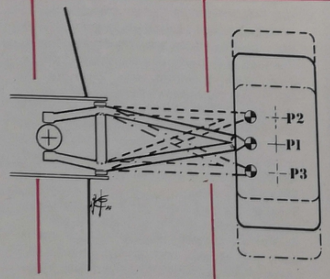
In between, he managed to go racing and actually became a professional, running his Brabham in the European Formula 2 Championship in the late Sixties and early Seventies. Brian Hart Limited was started in 1969 just as Cosworth was becoming heavily involved with the rush for Formula 1 DFVs. FVA work, therefore, was there for the taking but the pressure of business became so great that Brian Hart, racing driver, retired to devote all his efforts to a company which was to enjoy tremendous success. The record books show at least three Formula 2 championships and a series of RAC and World Rally titles.

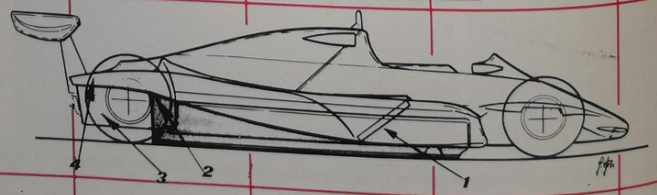
'Nosher' Hart is fond of good food and wine, yet he retains a slim build thanks to rushing around the factory, playing the occasional game of squash and doing gymnastics. Seventy-five per cent of Brian's time is spent on Formula 1 as he controls operations from the workbench masquerading as a desk in the main office. Upstairs, he has a 'quiet room' next to the drawing office. Apart from one or two drawings and an 'Autocourse' diary, the desk in there is fairly clear. Gathering dust in a corner is a framed photograph of the man driving a Formula Junior Lotus in the London Trophy at Crystal Palace in 1963. He finished second.

Not a lot has changed since then. Brian Hart's hobby is still his business. The BRM V16 has a lot to answer for. □

LOTUS JPS 91





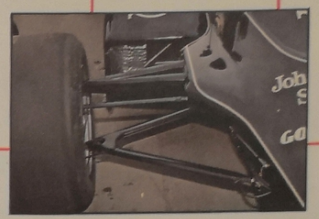


MAIN DIMENSIONS:

Overall length: 430 cms
Overall width: 215 cms
Wheelbase (three variations at front):
P2: 2 749 mm (108.2 ins)
P1: 2 799 mm (110.2 ins)
P3: 2 849 mm (112.2 ins)
Front track: 1 786 mm (70 1/4 ins)
Rear track: 1 672 mm (65 7/8 ins)

Carbon fibre and Kevlar chassis.

Rear view of the chassis, without the engine bulkhead.



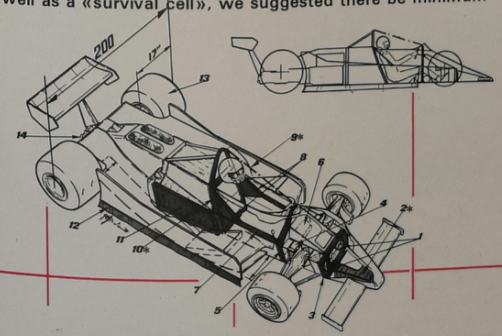
4. The new front suspension.

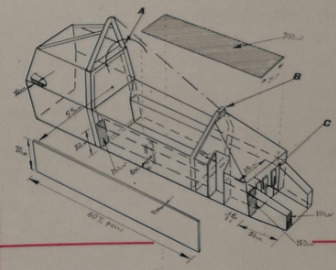
CAPTIONS FOR LOTUS 91 TECHNICAL DRAWING

1. The two small front wings are fixed directly into the chassis.
2. The new front suspension allows for three different lengths of wheelbase by changing the angle of the suspension arms themselves. There are also two different settings at the rear, giving a choice of 6 wheelbases.
3. Front brakes with only one caliper per disc.
4. The carbon fiber and Kevlar chassis is based on that of the Lotus 87.
5. The JPS 91 has no water temperature gauge and only a red warning light for oil pressure.
6. The water radiator is mounted conventionally.
7. The upper lateral parts of the chassis also form the bodywork.
8. The oil radiator is on the right, following the system adopted for the latest Cosworths.
9. Fire extinguisher and driver's medical air bottle.
10. Oil overflow tank.
11. Redesigned exhausts.
12. Mirror encased in the bodywork.
13. Water tank for "brake cooling" — it will be increased in size shortly to ballast the car !
14. Intake for engine cooling air.
15. Engine air intake.
16. Bodywork swept behind the rear wheels.
17. New rear suspension.
18. The bodywork under the car goes right to the back, and completely encloses the gearbox.
19. Lateral attachment member for the lower bodywork.
20. Rear wing support.
21. New air intakes for rear brake cooling, specially designed not to disturb the air flow to the wing.
22. Bodywork openings for rear brake cooling air.
23. The front bodywork, of very flowing lines, extends right to the rear wing mounting.
24. Air deflectors in front of the rear wheels are similar to those of the Lotus 79.

ABOUT THE NEW SAFETY RULES

New safety rules, designed to create a real «survival cell» for the drivers inside the chassis, came into effect from the Brazilian Grand Prix.
Grand Prix International suggested, in its South African Grand Prix issue back in 1980, the introduction of new standards to result in practical terms in safer G.P. cars.
Indeed, our project went further by also proposing that performance be reduced in the interest of increased safety. As well as a «survival cell», we suggested there be minimum external dimensions for the chassis and a reduction of the maximum width of the bodywork from 140 to 120 centimeters inside the wheelbase.
In practice, the cross section of the lateral pontoons, where ground effect is created, would be reduced from about 55 cms on each side to about 35 cms, bringing about an appreciable reduction in the aerodynamic downforce, and thus a reduction in the grip and cornering speed.





1. Minimum width for the pedal cage. 2. Mandatory front deformable structure. 3. Double thickness for the forward area of the monocoque. 4. Steering fixed to the upper chassis. 5. Front roll-over bar to the bottom of the car. 6. Fire extinguisher in the car. 7. Double thickness skin at the cockpit level. 8. Safety uprights for the driver. 9. Absolute respect for the roll-over bar rule. 10. Central roll-over bar fixed to bottom of monocoque. 11. Fuel tank protection. 12. Flexible or reduced skirts. 13. Narrower tyres. 14. Conventional starter.

KEKE ROSBERG THE WILLIAMS EFFECT

Hard at work during the weekend.

When Keke Rosberg finished 5th in the South African GP with a misfiring engine and a broken gear lever in his Williams, only he was surprised by the attention that his performance attracted. Three disappointing years in Formula I have not dulled the moustachioed Finn's faith in himself... and now he's ready to take over at Williams where Alan Jones left off.

by Jeff Hutchinson

London. Ahead of us the road was damp where a light sprinkling of rain had given the tarmac an oily-looking sheen. For a rare moment we had managed to break away from the slow-moving city traffic, and the noise that bounced back from the labyrinth of red-brick buildings alongside was the V8 engine beat of our car. It vas a Ferrari 308 GTS whose glossy black paint almost exactly matched the surface of the streets beneath our tyres.

The temptation to open up the Ferrari's throttle was too much to resist for my driver. Keke Rosberg, Frank Williams' latest choice of Grand Prix recruit, was still on a "high" from a sudden change of fortune. Last year he was suffering the miseries of the Fittipaldi team, often failing even to quality for races. A few days earlier, at Kyalami, he had shown all his ability against the best in the world.

The 308 GTS, an immaculate two-year-old example, is his latest acquisition. Even on a cold, damp Saturday afternoon there was nothing to extinguish the feeling of well-being which he has been experiencing since he signed with his new team.

In response to Keke's right foot, the Ferrari leaped forward like a horse from the starting gate. Using an unfamiliar left hand (the car has right hand drive), he searched precisely for the correct slot in the narrow chromium-plated transmission gate, finding third gear with only an instant's hesitation. A glance in the mirror confirmed that the traffic behind was shrinking away rapidly. Already the speedometer was

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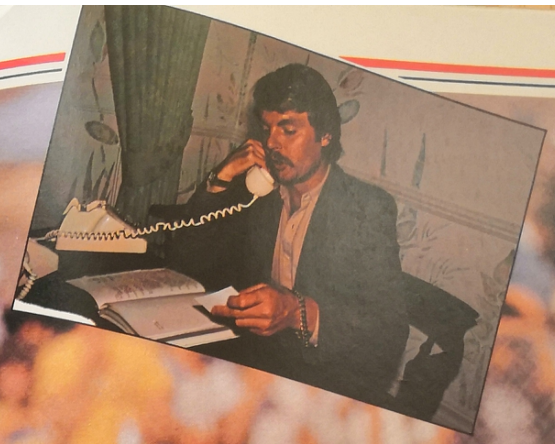


Keke works hard off the track on the business side of being a Grand Prix driver.

Rosberg made a name for himself in America at the wheel of Paul Newman's Canam Lola.

nudging 70 mph. The heads of passers-by turned in our direction to acknowledge the delicious roar of the engine's twin exhausts, now reflected back to our ears more urgently than before.

A cool breeze briefly played around the back of my neck from the half-open side window, but my attention was fully occupied by something else. Ahead of us was a fast-approaching corner, and Keke showed no sign of wanting to slow down. There was a momentary glint of mischief in his eye. I knew what was coming and I braced myself.

Firmly but sharply, Keke tugged the tiny steering wheel, simultaneously stabbing the throttle just hard enough to kick the rear wheels out of line. There were granite kerb stones and a row of sinister-looking steel lamp posts lying in wait, but he had anticipated them perfectly. Easing back on the throttle, he wound on just enough opposite lock to hold the slide and take us through the corner safely.

The excitement cannot have lasted more than a couple of seconds. The sound of the engine, coming at me from behind my right ear and through the open window, now sounded more like an apologetic cough. Fortunately, we were slowing, for coming out of a side road not 100 yards in front was a big red double-decker bus.

Its progress halted as the driver took a final glance to his right and took in the sleek shape of the Ferrari. More traffic loomed beyond the bus and we slowed right down again. Back at the 30 mph limit, Keke revved the engine as he slipped the gear lever into second. He relaxed his grip on the wheel, bent his arms and slid his hands to the bottom of the rim.

As he looked across to me he was grinning. He raised his voice to be heard over the music from the stereo speakers: *"Isn't it great? You can place this car so precisely, it goes just where you want it to go. And since Frank doesn't make road cars yet, I have to buy the next best thing. Right?"*

I felt as exhilarated as if I had been driving the car myself. Once again I was sharing the extraordinary skills of a man that I have spent so many hours watching on the racetracks of the world. But this was like watching the singer cut the record in the studio, or the artist add the final brush strokes to a masterpiece: he was doing it just for me. I was an appreciative one-man audience and Keke had enjoyed his performance.

We were on our way home from a photo session at Biggin Hill aerodrome, taking pictures of Keke with his pretty six-seat Piper Seneca twin-engined aircraft. Walking through the historic rows of Nissen huts and hangars from which the RAF had once flown against the Luftwaffe, I could not help thinking of the similarity there must have been between the bubbling, bouncy, blondehaired man beside me and the wartime fighter pilots. In 1940 they sat nervously on these same lawns as they waited for the signal to rush to the cockpits of their Spitfires, perhaps never to return. It must be the same spirit which attracts a Grand Prix driver to the even more cramped cockpit of a modern racing car.

I had first met Keke Rosberg about six years before. He was sitting nonchalantly on the pit counter at the Hockenheimring, Germany, watching the F2 cars practise while waiting for his own qualifying session in the Super Vee supporting event. We spoke only briefly, introduced by another journalist, but at the time I remember being impressed by his almost arrogant self-confidence in almost perfect English.

I also sensed a king of quiet determination between his words and, although I did not know at the time, it was only because of that determination and confidence in himself that he was sitting there at all.

Aided by his rally driving parents, Keke's ability had soon come to light as a young man when he cleaned up in Finnish kart racing. He had more kart success in Europe, and it was not long before his thoughts turned towards bigger things and a Formula Vee car. That's where his father's support stopped. *"He was against it because he did not think I could afford to run the car and he could not afford to help me either. It caused a big argument and we did not talk for quite a while at the time,"* remembers Keke, who did well enough to get backing for a Super Vee. "I had been promised a drive for a team, but another guy got the drive when he appeared with some money. That's when I first realised what motor racing was all about," laughs Keke to-day. But it taught him the first of many hard lessons to come.

He raced the Super Vee, did well, and decided to take a year's leave of absence from his job as a computer analyst, "to get motor racing out of my system or to make it my living," he recalls. The computer people are still waiting for him to go back. Racing also pushed his brief marriage on to the rocks, and he came back one day to find his house empty.

Keke was hungry (often literally) but happy as he joined the travelling band of Super Vee 'gypsies' going from race to race, helping each other out and having a great (if not always profitable) time.

His father, a veterinary surgeon, added to the growing pile of newspaper cutting books that he kept of his son's progress. He religiously keeps them up to date to this day.

These experiences were not only moulding him as a racing driver, but also laying the foundations of his character. Hard times in the past explain his frugality which, since his success, seems to be fighting an almost daily battle with his equally exagerated "big-spender" characteristic.

There are his "toys" on the one hand, costing thousands of pounds, yet he will argue over the price of a cup of coffee if he thinks it's too high. *"I suppose I have to admit that I am a selfish person and that I look after my money. Things have to be correct when it comes to money. If I go out to dinner, for instance, I would much rather that everybody pays for his own dinner. If you go out with a group of half a dozen people, maybe you don't know one or two of them and then you cannot say at the end of the meal that you want to pay just for your friends. So maybe you end up paying the lot, and that annoys me."*

A Cobra replica called the Stallion keeps his attention up on the road.

A new home for Keke and Yvonne close to the Williams factory.

Commuting is no problem flying his own Seneca II twin-engined aircraft.

It didn't take long for Keke to make his way into a paid drive — *"I certainly didn't have any money to buy one, that's for sure"* — and after a disappointing season of F2 with a German TOJ, he got his next big chance when American Fred Opert gave him a car for the New Zealand Tasman series, which he won. He carried on in F2 and F. Atlantic with Fred. By 1978 he made it into his first F1 seat with a drive for Teddy Yip.

He won his first race, the wet International *Daily Express* meeting at Silverstone, one of the few drivers to cope with the slippery conditions and keep his car on the track. As he says, *"I thought I had made it then, but I was only just beginning,"*

Later in the season he drove Teddy Yip's Wolf in Germany, then the ATS at the end of the year. But he found himself out of a drive for 1979.

He signed for Can-Am in the states with Paul Newman's team, did some F2 racesand then got a second chance at F1 when James Hunt retired from the Wolf team and from racing half way through the season.

Peter Warr, Wolf's team manager, had been so impressed by Rosberg's performance in the private Wolf the previous year that he soon had Keke under contract for the rest of the 1979 season. It did not go well, for by this time Wolf Racing was on its last legs.

"By the end of the season I was exhausted and I realised that racing every weekend on both sides of the Atlantic was no good either for me or my racing, especially if you cannot afford to fly Concorde like Mario Andretti used to do."

Warr and Rosberg had earned a deep respect for each other's talents, so they were both delighted when Emerson Fittipaldi took over the remains of the Wolf team and Emerson kept Keke as his number two driver. *"Peter taught me a lot"*, Keke admits, *"and by this time I knew that all I needed was the right car. Then I could be just as quick as any one out on the track"*.

His two years with the Fittipaldi team brought financial reward too, but even the money and his much improved lifestyle were not enough to make up for the frustrations of driving for the underfinanced team. *"Things were going badly with the car and the team and I was really down. I thought it wouldn't be so bad if I was at least getting paid on time and by the British GP I issued an ultimatum to the team: I would not drive unless I was paid what was due to me. I got my money, and then I discovered something about myself. I realised that the cash did not make any difference to my will to win."*

"If I had just been in racing for the money I would have been happy, but I

wasn't. Yet still every time I sat in the car and when down the pit lane I gave 100% effort. I owed it to the team. It was something that I couldn't help doing anyway.''

Keke might not have been able to change his natural racing instincts, but as a person he was beginning to change. By this time, we had got to know each other better and I had grown even more respectful of his shrewd brain and selfish determination. I had also discovered a sharp sense of humour and had witnessed the way in which he dismisses anyone he considers to be a fool, or who tries to treat him like one.

It was early in 1980 when he had first spoken of flying, a second love of my own, and it was not long before Keke was pouring out questions on the subject. I told him it was not as hard or as time consuming as he thought it was. Then, on learning that I spent much of the motor racing ''off season'' teaching flying in California, he said *''That's for me, let's do it together at the end of the year.''*

That was in January and I had not really given it much thought until the end of the season when Keke, to my surprise, was still as keen as ever to start. A month later, we were together in California. It was not until this time that I really got to understand Rosberg the man and racing driver as we lived, worked, played and fought together every day for two months.

I discovered his analytical mind, his love of partying, his dislike of getting up in the morning, his keen business brain, his sensitivity (which he tries to hide), his impatience with his own shortcoming.

I also began to appreciate his humility, thoughtfulness, good sense, good taste and his love of fine clothes.

By Christmas he had earned his private pilot's licence and had also bought his first aircraft, a single-engined Piper Turbo Arrow. He had also bought a new car, an AC replica called a Stallion, which he had seen in a show-room window and could not resist. *''That caused a hard time with Yvonne,''* he remembers. Yvonne is Keke's attractive and charming Finnish girlfriend for the past two years: she finds little difficulty in agreeing about Keke being selfish, perharps because her own tastes are almost as expensive as his.

Certainly for someone who is still in her early 20's, Yvonne seems to be able to do a remarkable job keeping 34-year-old Keke in hand, even though he woudn't agree.

Flying has added a lot to Keke's life, too. *''I have changed since I started to fly. I have become more disciplined than I used to be. You have to take things more seriously in the air and it has calmed me down. Now I am more calculating in my actions.''*

He soon traded his Arrow for a pretty twin engined Seneca. He had not seen it for several months before our trip to Biggin Hill and there was pleasure written over his face as he eased himself into the pilot's seat once more.

The obVious enjoyment that he gets from his plane or his cars is enough justification for the cost.

Keke's various homes now include a flat in Monaco and an attractive farm-type villa on the holiday island of Ibiza, where he spends much of his free time sunbathing and playing with his jet-ski water

Every day starts with a long run.

scooter. He has just acquired a beautiful new house in Berkshire, to be close to his new team. Co-incidentally, it also turns out to be just a few hundred yards from the house where Barbro, Ronnie Peterson's widow, still resides.

This life-style has earned Keke a reputation as a Grand Prix play-boy, but he dislikes the title ''play-boy'', and Yvonne hates it. It implies that he does little between spells at the wheel of his racing car, a suggestion which could not be further from the truth.

''One of the big things about driving for the Williams team is that it has opened up a lot of business opportunities for me. I don't have any time now to sit around the house and think about things too much.

''Now I am very busy working on new sponsorship deals, going to shows and giving interviews to the Press. It's almost a relief to get into the racing car where you only have to worry about one thing-- winning''.

He finds the current problems between the drivers, teams and FISA just as frustrating as press and the public do. He does not wish to have anything more to do with the problems of the South African race. ''I am not a political person. I don't like politics. There are enough pressures on you with the racing without making more with the team. Anyway, anybody with any common sense could see that it's not the same problem anymore. The drivers are just being used as a scapegoat. My worst regrets over South Africa was being driven away to Johannesburg by bus on Thursday morning.

I was not able to talk to Frank, who has been very fair to me.

''When things went so far I tried to talk some of the other drivers out of it, but although in private about half of them agreed with me, when I got a vote on the idea, only four or five of them voted with me. Now I don't want to waste my time on arguments anymore.''

When you listen to someone like Keke, it seems hard to believe that he has yet to win his first GP. That, of course, is his next objective.

''It will happen this season, for sure, says Rosberg almost matter-of-factly. He finds all the attention he is currently getting almost amusing. ''Last year the Finnish press gave me a real hard time taking my reasons for not doing well as poor excuses. Now they think it's Williams that's making me go better.''

Keke sees his future in GP racing as a long term business and not just until he makes enough money or wins the world championship.

''Obviously I cannot say what's going to happen in the future, but I certainly hope to be racing with Frank for at least four years. I enjoy racing, especially when I am overtaking other cars. But I honestly don't enjoy races like Kyalami, even though I finished in the points, because both Carlos and then Niki went past by me. I know there was a good reason for it, but it still didn't make things any easier.''

Whether it's his racing, his flying, his cars, plane, clothes or houses, Keke Rosberg is the kind of person who can never be happy with anything less than perfection. ''Those people who are satisfied with something less, well, they just don't become World Champions.'' □

LAUDA OUT

Playing cool in his second comeback race didn't help "Super-rat", who had to retire when shunted by Reutemann.

ROSBERG IN SILVER

Keke Rosberg got his highest placing, just one step from the top of the podium, with a typical fighting drive in Brazil. He won praise from Piquet, with whom he swapped places several times in the hard-fought race, for being a "very hard, but a very fair competitor" who was never dangerous. Piquet added what the public have learned to appreciate of Rosberg --"he's very spectacular, too."

BRAZIL BRAZIL

Steaming heat, jam-packed grandstands seething with Brazilian passion, cloud-wreathed mountains in the background as the cars thunder past – that is Jacareagua. It was the scene of an admirable race, with the drivers problems in abeyance, they could concentrate completely on the punishing circuit and their tactics, and give the crowd a great spectacle of hard but clean racing at its best. Photo: DPPI.

FLAGGED ON

Flags of all nations wave over Alain Prost as he charges past a grandstand, but the first flag is that of Brazil and this is a home town crowd that erupted when its world champion Nelson Piquet took victory after an excellent, fighting drive. It was flying for Eddie Cheever, but the stars and Stripes also signposted the next venue of the most international of sports, on the shores of another ocean, at Long Beach. Photo: B Asset.

GILLE'S BIG MOMENT

He had led the race from the start, his tyres were going off, Piquet was pushing; but there was no way Gilles Villeneuve was going to give up the lead. Piquet made another daring try on lap 30, outside the Ferrari into a medium left-hander. Gilles tried to keep the line as the Brabham closed in, put two wheels and more on the grass, lost it and hurtled across the track right under the nose of Piquet, whose savage braking brought blue smoke from his left front wheel. But he held it to go on to win while Gilles climbed out of the catch fencing. Photo: Jeff Hutchinson.

MAKES THE WHEEL GO ROUND

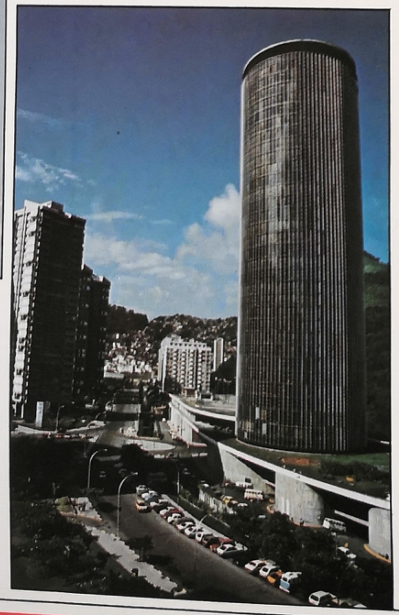
A constant of the racing scene, the lovely girl perched on the pit wall as her friend -- in this case, Elio de Angelis -- strives to go that extra hundreth of a second faster, passing her in a blur of black an gold every minute or so, or sitting impassive in the cockpit as the mechanics work. Impassive, except for the imperceptible flick of the helmet or wink from under the visor that shows her that he knows she is watching... Photo: B. Asset.

Postcard from Rio de Janeiro

Water for the brakes?

And he drives well, too.

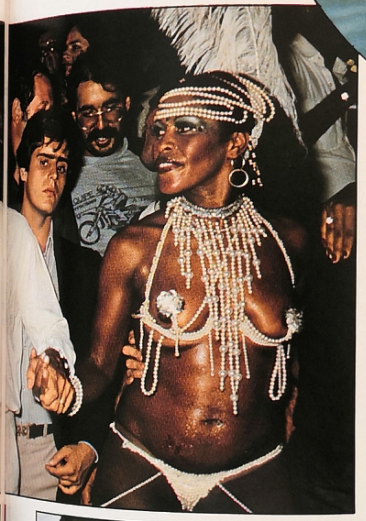
The Ranch, Ipanema, Long Beach, not a bad life!



The latest models...

Close encounters...

in Brazil.



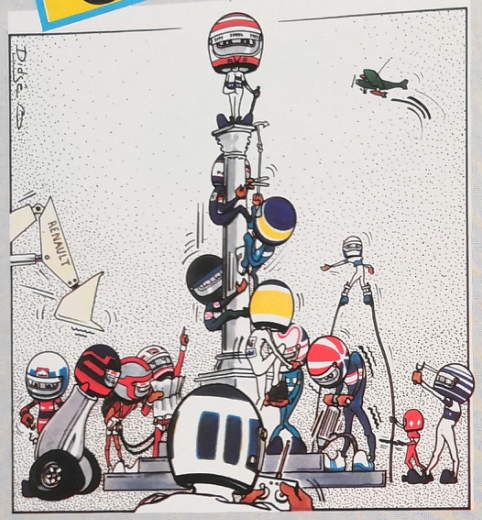
They make great waterbeds...

Nelson!!!

love, G+J

Try this on your brakes!

NELSON'S COLUMN



There were so many memorable things for me about this race in Rio that it's difficult to say which is the most important. At the moment, on the evening of the GP, I Think the most outstanding thing was the very hard but very clean battle which I had with Keke Rosberg.

I Have always liked Keke, even when he didn't have a car to be competitive. Driving against him in Rio reminded me of some of the races I bad against Niki Lauda in the days when Niki was my number 1 in the Brabham team. We Would attack each other, and overtake if we had the opportunity, but it was always clean: I never worried that he would do something stupid or dangerous.

And even when I passed out on the podium in Rio, it was Keke who was trying to make sure that I didn't get crowded.

We put on a good race, I think, and I hope we have plenty more this year in the same sporting spirit.

There was a slightly different Brabham for the race, a "D" version of the BT49 with a lot of changes in the bodywork and chassis. The monocoque was stiffer and lighter, but probably the best thing that came with it was the man I call The Genius, our designer Gordon Murray.

While we tested the interim BT49C in Brazil, Gordon had been busy in Europe with the last series of tests that Riccardo Patrese had done with the BMW turbo-engined BT50.

Once in Brazil, though, Gordon showed just how quickly he can pinpoint problems with the car. On the first day of official practice we weren't getting enough best into our Goodyears (they were running 25 degrees cooler than similar compounds on the Williams), so he worked out ways to give us more downforce without sacrificing the balance in the handling that's so important. And it worked!

Gordon isn't too keen about visiting my country, unfortunately. Although as a South African he's lived in the tropics for most of his life, he managed to catch some sort of bug on the day before the race which laid him low. I believe the hotel had to fix him up with a TV set in the bathroom to make sure he could watch the race. He had a reservation on the plane to London, Sunday night and I heard that he was determined to catch it, even if he had to crawl aboard...

After having to be lifted out of my car in Las Vegas, and then collapsing on the podium et Rio in front of a TV audience of millions, I getting a reputation as a bit of a weakling. I'm not happy about that, especially since I have been doing a lot of training recently and even turned out last week with the Seleção, the national Brazilian soccer team which was playing West Germany at our 300,000 seat Maracaña stadium in Rio on the night of the race.

I'm sure that I could have raced for another half hour in the GP. Unfortunately, when it came to clinbing up to the top step of the podium everything went white and my legs didn't want to hold me. After half an hour in the medical centre, though, and a change out of my sweat-soaked overalls, I felt fine, with only a few twinges from my neck and back to remind me of the bumps and g forces.

Nine points is a good result aniwhere, of course. It was good to win them at home, though, after all the criticism I got in Rio last year for my decision to choose slicks in the rain. If there's one good thing about being champion, it's the know ledge that you've proved yourself. That means you can concentrate on enjoying your racing.

On the other band, a champion's duties include a lot of publicity work. I Manage to avoid it for most of the time, but I had a week of photography and appearances before the GP, and on the day afterwards I was due to fly to Long Beach to help Chris Pook with the promotion of that race.

I can't wait to get back into a racing car...

LIGHTER STILL AND LIGHTER...

A new feature on almost all of the non-turbo cars which practised for the Brazilian GP was a plastic water bottle. In theory, the water was to be used as a coolant for the brakes, but the truth of the matier is that the water was being used as "disposable ballast" in order to beat the 580 kg minimum weight rule. As mentioned elsewhere in this edition of GPI, the disputes that have been created between the teams with heavier, turbocharged cars (Renault, Ferrari and Toleman) and the predominantly British teams which use the traditional (and much lighter) Cosworth engines have been accentuated by the question of disposable ballast.

The British teams feel justified in their interpretations of the rules by the power superiority of the turbos, which they regard as unfair. But one wonders how long it will be before attempts to sacrifice weight at all costs, either in chassis or suspension parts, will result in a serious accident.

Leading British engineers claim that weight does not intrinsically increase safety. In the case of their cars, where cost of suitable exotic materials is no object, no doubt that argument is valid. But there is now serious concern that less well financed teams, anxious to stay as competitive as possible, will try to save weight unwisely. FISA president Balestre has promised a solution. We hope one can be agreed before it is too late.

MGD

ALFA ROMEO

182/1: Bruno Giacomelli
182/2: Andrea de Cesaris
182/3: T-Car

The team's first all new chassis since their return to Grand Prix racing is far removed from its predecessor, the 179. Built from a concept laid down by Gérard Ducarouge, the Alfa team was very secretive about its new car, which features a light carbon-fiber monocoque built in England by Advance Composite, Derby. The car's real weight (less water in the bottle) is an impressive 535 kilos. Built in just three months, it is a simple, tidy design featuring unusual aerodynamics.

As well as the usual venturi ground-effect side pods, the central underside section of the monocoque has been given a venturi shape to increase the airflow under the car. The aerodynamic centre of pressure is well to the rear of the car making the job of balancing the handling much easier by use of the canard fins at the front.

The side pod area around the engine bay has also been increased (by around 10 cms), by relocating oil pump and water pipes to make the bottom of the Alfa engine much narrower. A new gearbox casting has allowed the gearchange lever to be moved to the top of the box, also for improved air flow.

ARROWS RAGNO

A4/1: Brian Henton
A4/2: Mauro Baldi
A4/3: T-Car

Since South Africa, designer Dave Wass has worked hard to improve the Arrows, which now features a new front suspension geometry and top rocker arm. New side pods now stop in front of the rear wheels instead of continuing around them as before, while the engine cover has been re-profiled with an adjustable flap at the rear to move the center of downforce further to the rear. Like most of the Ford-powered cars it has a water tank for "brake cooling." The monocoque has also been stiffened by increasing the sides around the cockpit area.

Cockpits

ATS

ATS HGS 1/03: Manfred Winkelhock
ATS HGS 1/02: Eliseo Salazar
ATS HGS 1/01: T-Car

Since South Africa the ATS team has a new engineer, Don Halliday, who has made many changes around the original monocoque. A new engine cover incorporates a dome-shaped airbox, while the side pod profiles have been altered and the back end of the car cleaned up aerodynamically with a fully enclosing shaped cover around the gearbox. Other new features are a revised water system, gear linkage now moved to the top of the gearbox, and a new exhaust system.
The car also has a new rear wing and a plastic bottle for "brake cooling" water.

BRABHAM PARMALAT

BT49D/17: Riccardo Patrese
BT49D/16: Nelson Piquet
BT49C/15: T-Car

Brabham designer Gordon Murray has carried out an extensive redesign of the Ford Cosworth powered BT49 chassis, now in "D" specification, two of which arrived in Brazil backed up by the old 49C type with partial D-spec changes.
A new monocoque is now higher and stiffer at the front. There is a new lighter one-piece body section, revised side pods and a new water and oil cooling system with different radiators. The fuel system is changed and the front and rear suspension geometry has also been altered considerably.
All three cars were fitted with carbon fiber brakes for weight saving, the first time that the cars have been raced with carbon brakes since Piquet's accident at the British Grand Prix, which was the first time they were used in a race. This almost completely new interim car is now well below the weight limit and carries a large water bottle for ballast. Murray was late arriving in Brazil and did not take part in the testing as he is also busy drawing up another new car which should appear towards the end of the season.

ENSIGN

MN181/1:
Roberto Guerrero

The Ensign team arrived in Brazil with a long overdue new car designed by Nigel Bennett, his first F1 design, featuring an aluminium honeycomb and carbon fiber mix chassis for economic reasons.
The base of the monocoque in aluminium is bonded to the carbon fiber top. Lacking the resources of the bigger teams, Bennett has kept the design of the chassis simple and conventional like its predecessor. It is down to the weight limit or a little under, reflected by a relatively small water bottle mounted in the side pod.

FERRARI SPA

126 C2/056: Didier Pironi
126 C2/057: Gilles Villeneuve
126 C2/058: T-Car

Development of the 126 C2 was delayed by Didier Pironi's huge accident at Paul Ricard, which destroyed the development car. A brand new third car arrived a few days before the race. The cars feature a revised side pod profile and exit shape for the air, while the nose and front of the side pod has been reprofiled for better airflow. Despite its heavy turbocharging equipment, the chassis is close to the weight limit although the only water bottles in sight were two thermos flasks on either side of Pironi's car with electric pumps to feed him drink throughout the race and practice.
Ferrari's biggest task at the moment is to try and find a way of saving their rear tyres with all their extra power going through them.

FITTIPALDI

F8D/05: Chico Serra
F8D/03: T-Car

Richard Divila, designer of the original Copersucar chassis, was on hand to look after the F8 chassis now in D-spec. It features a revised front and side pod profile, new rear suspension geometry, considerably reinforced suspension parts and stiffer chassis.
The car also had a new paint scheme featuring Brasil-invest sponsorship, a consortium of sponsors, a new name appearing on the car at each race, but hopefully not a new paint scheme if the team wants to keep weight down. It is already one of the heaviest of the Ford runners.

MARCH ROTHMANS

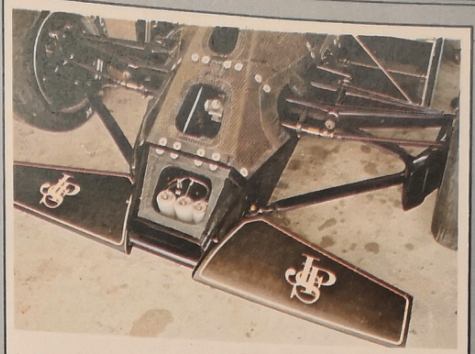
181/09: Raul Boesel
181/08: Jochen Mass
181/07: T-car

Designer Adrian Reynard thought he was doing well when he pared considerable weight off the March chassis to bring it close to the limit: he found that he had one of the heaviest Ford-powered cars in the race when the rest were weighed. Boesel had a new chassis for this race, both race cars featuring a new side pod profile and various lightweight parts and other minor changes. With their new backing from Rothmans Reynard will have the finance "to throw money at the weight problem" and buy things like carbon fiber brake discs. The cost of a set of carbon fibre discs is 2000 pounds (almost 4000 dollars) and they are good only for one qualifying session before they are thrown away.

TALBOT-LIGIER

JS17/05: Jacques Laffite
JS17/04: Eddie Cheever
JS17/02: T-Car

There were no big changes to the Ligier chassis, although an experimental hydraulic suspension similar to the Citroen system had been tested and then discarded before the race. The front and rear track were wider than in South Africa, but the team was suffering badly from not taking part in the testing in Rio before the race. Now a heavy car by other team's standards, the Ligier team is badly in need of the new JS19, due to make its debut in Zolder.



JPS LOTUS

91/6: Elio de Angelis
91/7: Nigel Mansell
87/3: T-Car

Based around the original 87 carbon fiber chassis, the new Lotus 91 features a new front suspension with three choices of wishbone to vary wheelbase and track at the front.
The 91 also features a new one-piece side pod which extends back as far as the rear wing with a beautifully shaped top section and extended rear section.
New Girling brakes have been fitted to the front and single caliper Lockheed discs (instead of double caliper) at the rear.
The instrument panel features no more than a rev counter and oil pressure warning light to save weight... which is well below the limit.
A new skirt system for the race considerably improved the downforce, necessitating new springs to cope with the extra loading.

Cockpits

RENAULT ELF

RE30B/6: Alain Prost
RE30B/7: René Arnoux
RE30B/5: T-Car

The team had three of the latest B specification chassis in Brazil, Prost's race car having been repaired after a testing crash when the rear wing broke. Lighter underbody panels and carbon discs on the T-car have helped bring the weight down to the limit (like the Ferrari), while a new carbon wing mount was replaced by a metal mount when Arnoux also lost a wing at the start of practice. A new hollow, lighter seat (with room for a water bottle should it be necessary) was also installed in each of the RE30 chassis.

CANDY TOLEMAN

TG 181/07: Teo Fabi
TG 181/06: Derek Warwick
TG 181/05: T-car

Revised front and rear suspension were the major changes to the Toleman cars since South Africa. The side pod profiles had also been altered, for improved downforce. Bracing struts had been added to the front rockers while the rear rockers are now constructed out of a tubular frames. The lower wishbones are redesigned, along with a new rear upright.
Toleman also tried new lightweight carbon fiber engine supports but they failed in private testing before the race and had to be replaced with the metal ones used in South Africa. The carbon fiber was unable to resist the heat generated by the engine.

THEODORE

TY02: Derek Daly

Tony Southgate introduced his new car at this race, the monocoque built from aluminium honeycomb with a much narrower bottom to faciliate the maximum use of the side pods. High sides to the monocoque have improved chassis rigidity and air dams along either side of the body help to increase downforce. The front and rear suspension is convention al although shock absorbers with internal springs were tried but then discarded for conventional coil spring/shock absorber units.

TAG WILLIAMS

FW07D/16: Carlos Reutemann
FW07D/17: Keke Rosberg
FW07D/15: T-car

The cars featured several minor modifications after recent testing at Brands Hatch but were put back to the original specification during practice.
The foot well had been modified and the foot box made stiffer to comply with the new regulations. Carbon fiber front and rear wings helped save more weight. Single caliper front brakes also saved weight since South Africa.

TYRRELL

011/4: Michele Alboreto
011/3: Slim Borgudd
011/2: T-Car

A limited budget for the unsponsored Tyrrell team has meant that since South Africa Ken Tyrrell has been able to do little to keep up with the weight race. Lighter side pods and brake discs were on Alboreto's chassis, the same change being planned for Borgudd's car at the next race.

MAC LAREN INTERNATIONAL

MP4/4 Niki Lauda
MP4/5 John Watson
MP4/2 T-car

All three MP4s in Brasil were to the latest FISA safety specification,
Driver complaints about heavy steering have been answered with a larger diameter steering wheel.
A novelty on the T-car was the previously unseen Mc Laren carbon-fibre brake discs,
Watson used them during qualifying only, without problems

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100's
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